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PROCEEDINGS OF SEMINAR (1ST) URBAN PLANNING FOR ENVIRONMENTAL HEALTH HELD AT AUSTIN, TEXAS ON 24 AND 25 JANUARY 1963

ROBERT A. TAFT SANITARY ENGINEERING CENTER
CINCINNATI, OHIO

PREPARED FOR
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Health in communities depends on adequate facilities and services for environmental health. Rapid growth of metropolitan areas requires correction of current deficiencies and plans involving community needs to prevent future problems. The variety and scope of existing problems are presented in several aspects of environmental health. Included are water and sewage, solid waste, and housing problems in metropolitan areas, radiological health, and control of atmospheric contaminants.

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urban planning for environmental health

January 24-25, 1963
Austin, Texas

This conference was designed for all health and planning personnel, public officials, and lay citizens who are interested in the planning of a more healthful environment. The proceedings have been assembled for the conferees and should not be cited as a bibliographic reference.

sponsored by

The University of Texas
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in cooperation with

Metropolitan Planning Training Section
TRAINING PROGRAM
Robert A. Taft Sanitary Engineering Center

DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
U.S.A.

Public Health Service
Bureau of State Services
Division of Environmental Engineering and Food Protection

August, 1963

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PREFACE

Health in communities depends, to a large extent, on adequate facilities and services for environmental health. The rapid growth of metropolitan areas is compelling citizen and official recognition of the need for correcting present deficiencies and for planning now to prevent occurrence of future problems. Such plans must be judged in the light of overall community needs and desires.

The proceedings which follow indicate the variety and scope of problems existing in each of the several aspects of environmental health. They can be solved most effectively through realistic concern and constant effort for improvement by all of us. This effort requires the cooperation and teamwork of all persons of a community, including health, planning, and public works officials and citizens.

The Public Health Service believes that the challenges of maintaining a healthful environment in our urbanized and industrialized society can be met by intelligent analysis, foresighted planning and positive action.

It is hoped that those who attended this conference on Urban Planning for Environmental Health and you who read these proceedings will have a greater awareness of the problems and possible solutions. This greater awareness will surely increase the efforts and cooperation to secure a more healthful environment now and in the future.

The Public Health Service and our co-sponsors are pleased to have the opportunity of jointly assisting in this important work.

Wesley E. Gilbertson, Chief
Division of Environmental Engineering
and Food Protection

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OBJECTIVES OF THE CONFERENCE

Paul Oppermann

"It is unfortunate that the unborn future generations cannot be with us to see many of the wonderful things we are doing with their money and for which they will have to pay in the years to come." This is a quote I lifted from the Conference on Environmental Engineering and Metropolitan Planning, held at Northwestern University in the spring of 1961. I should like to add, however, that it seems to me regrettable that these same generations cannot be with us today, to help solve some of the problems we meet here today to discuss - problems of our states, cities, metropolitan areas and the nation!

This is a first seminar on urban planning for environmental health and I note four sponsors: The University of Texas, Public Health Service, Housing and Home Finance Agency and the Texas State Department of Health. Each of these important institutions is represented here for a purpose. Two of them are state and two are federal. Their functions and services encompass the subject matters of this seminar, and of course much more. These functions and services relate, each one's to the other's, and they each have an integrity and special character of their own to be understood and kept clear, and as well to be seen as related, associated, interrelated, interdependent. We are all here to serve the cities, metropolitan areas and urban regions.

The seminar has two chairmen, representing the urban planning emphasis on one hand, and on the other, environmental health. Although here is separateness and a clear distinction, here also is an association and an interrelatedness. Urban Planning for Environmental Health is the conference theme. I have a reason for stressing this. I believe we need to focus on the "separateness" as much as on the "togetherness." An experienced cook knows it is not only the separate ingredients that make a proper "mix" or a good blend, but also the procedure, including the timing and the proportions that combine the separate elements.

Each of us would state the prior needs, the objectives of this conference, somewhat differently depending upon his experience and his personal notions. I propose to concentrate on the following topics as they relate to urban planning and environmental health.

1. Urban planning for environmental health. How is this defined? What is a proper "mix" of programs and professional skills if we are to achieve the best results?

2. Urban planning. What part is played by comprehensive planning? What role has the general plan, the physical planning process, in urban planning and environmental health programs?

3. Universities. How about the contribution of the university? What is it now? What can universities do further?

4. Metropolitan Planning. How important is the metropolitan area? What is happening there? How does metropolitan planning fit the current situation, how does it relate to our seminar, and what can it contribute to the work we are discussing here?

5. In general. What is necessary for more and better progress - locally, regionally, statewide, nationally - to strengthen and expedite the program of urban planning for environmental health?

First, urban planning for environmental health. How is this defined? What is a proper "mix" to achieve desired results?

The Proceedings of the 1961 Conference, Environmental Engineer- and Metropolitan Planning, quotes the World Health Organization definition of environmental health work as follows: "The control of all those factors in man's physical environment which exercise or may exercise a deleterious effect on his physical, mental or social well-being."

Urban communities and urban regions (including metropolitan areas), are the environment, in the general sense, for most of us. The environment affects us physically, it affects us mentally. It affects both parts of our health. Health is of course a unity not really divisible. And health affects us socially, in groups, in communities.

There are communities and communities, communities within communities, endlessly, almost like Chinese boxes. The neighborhood is a community. There are rural or agricultural communities as well as urban. Some cities may be much too big and others much too small for human purposes, but we haven't defined them. The state is a community. The nation is a community. Let's stop there. If we were to attempt to define the quality, the range of environmental health our communities provide, we'd find it very difficult to be precise.

Second, what part is played by comprehensive planning, the general plan which is sometimes called "city plan" or "master plan"? What about the general planning process affecting urban planning and environmental health?

I feel that it is very late in the game to still have so much confusion about comprehensive planning. It's a burden on the public, on the professions, on our governments, on our business people, and on citizens generally. It's undesirable, wasteful and unnecessary. Our two groups ought to work together to clear it up and get on with the job. Planning is a dictionary word. As such it's everybody's word. We all know what we think it is and of course we all plan. But in a context the noun planning is given a specific denotation, dimension, and concrete meaning.

What context then are we asked to consider here? Comprehensive planning, whether for a city, a county, an urban region, or a metropolitan area, is practiced and applied. I am referring to areas as political jurisdictions engaged in the process of regulating and directing their physical growth and development, utilizing laws governing ordinances and regulations in written, drawn, and mapped form affecting land use, circulation, community facilities - both categories of land use, private and public, are encompassed. Their location, extent, spacing and many other relationships within the total area of a planning jurisdiction are designed and regulated in comprehensive general planning. A relatively new profession has developed out of the public's need and demand for comprehensive planning. The general plan and the planning process as defined is established far and wide in cities, counties, and states of the United States.

It is not architecture, it is not engineering, it is not law. Neither is this planning a social science newly incubated. Of course it owes much to these professions and to many professional and academic disciplines.

When the qualifying adjective is dropped, as it often is, we talk about "the planner" in city hall and court house, frequently in a state house and in Washington as well. We mean the man in the planning commission office, or the private planning consultant, who helps the publicly employed planner or prepares the general plan on a per diem fee or a contract. Such planning concerns land use, zoning, subdivision regulations, the capital improvement program, urban renewal, and project plans in their initial first phases of "comprehensive" and general statements.

In its recommendations, the conference held at Northwestern

University in February, 1961, said "It was obvious that there was some lack of understanding between the professional disciplines regarding their respective roles in solving the problems of metropolitan planning. The (recommendations) committee feels that some of this lack of understanding stems from certain inadequacies in academic training of planners and engineers."

Other recommendations of the Northwestern group dealt with this need to clarify relationships between engineers and urban planners to strengthen each in the capacity to work with the other more effectively and more productively in the public interest. Progress has been made but much more is needed. The effort should be made, however, not alone in the schools, but throughout both professions on the part of engineers and planners of wide and mature experience and directed toward the young fellows in the profession coming in or coming up. Clarifying who does what and who should do the job needs doing in government, in the professions, in the universities, and in the press. The public will be benefiting and I believe will show its appreciation. We work for them.

How about the contribution of the university? What is it doing now? What can it do further?

Reference has been made to the university earlier, in discussing the need for clarification of the respective roles in urban development among the physical science-oriented professions and in relation to the social science ones. Here, it is worth pointing out, many universities are now contributing directly to the "operational" programs serving the many-sided field of urban growth and development. This research has come forward powerfully and is growing strategically useful. "Growth and development" is a phrase that today has widely varying meanings, depending upon to whom you are talking. I am referring here to urban studies, and urban-region oriented research which, since the end of the last war, has expanded on a wide front, from housing to transportation, from water resources to air pollution. A number of Federal agencies, under the eye of Congress and with the encouragement of foundations, are associated with the universities in this research. This research, the training and experience it provides for graduates, faculty, and government people alike, and the trained manpower it provides which we need, supplies real and tangible public benefits.

A proper research "mix" should be developed if urban planning for environmental health is to present a structurally strong, "load-bearing" program - in the nation, in states, in the communities. I am speaking here also of the "mix" we need in administrative (top management), technical and professional skills. In spite of the word that circulates from north to south and from east to west, that the planner, the general plan, the comprehensive planning programs, and the procedures have "arrived," some of us long in the trade are skeptical that this is all truly so, and will gladly trade a little more evidence for the present amount of rumor!

The fact is we do not have anywhere near enough comprehensive planning. We do not have either a sufficient number of general plans or of trained, experienced general planners, We are not being supplied even half the number of graduate planners the universities should be giving us. Texas has some good planners but far too limited a number to serve your present need, and you are going to need many more in future years. This is not a "commercial." My part of the country is in the same situation.

Let's turn to metropolitan planning and the metropolitan area. What's happening there? How does this kind of comprehensive planning fit the new situation? How does it relate? What can it contribute?

In 1961 and again last year the American Institute of Planners asked about twenty-five of the metropolitan planning offices of the country to have their directors and some of the university people working in the field, meet and develop some findings and recommendations on the role of metropolitan planning. What they formulated as a result of their meetings began as follows: "In response to specific physical, social and economic problems of urban America, an important new public activity is emerging in our metropolitan areas, with a new kind of instrument to advance it. The activity is metropolitan area planning and the new instrument is the metropolitan planning agency."

Additional excerpts from the American Institute of Planners statement on "The Role of Metropolitan Planning" are as follows:

> "A. Definition and Role of Metropolitan Planning
>
> "Metropolitan planning is comprehensive planning applied to areas containing a large urban concentration where dominant economic, social and physical factors may overarch local and even state boundaries. The function of metropolitan planning is to contribute to the formulation and implementation of optimal public policy for the metropolitan area.
>
> "Metropolitan planning functions at a new level in the governmental hierarchy, one which, however, includes fundamental roles for governments at all levels. On the one hand, metropolitan planning serves as a framework and a vehicle for the coordination of the planning of municipal, county and other local units of government, and

for relating these plans to the desirable development of the metropolitan level should serve to integrate local and metropolitan plans with the plans of the state and of the nation.

"Although metropolitan areas are in fact economic and social entities, they are generally characterized by a fragmentation and overlapping of political jurisdictions, rapid population growth outside of the central city, disparities between tax and service boundaries, great mobility of urban populations, and the existence of many governmental needs that can be met best only on a metropolitan-wide basis.

"B. Long Term Policies for Metropolitan Planning Agencies

"The metropolitan planning agency should seek the development of a unified plan for land use, density and design, the provision and correlation of public facilities, services and utilities, and the preservation of open space and wise use of natural resources. It should strive to coordinate local planning, both public and private, with planning at the metropolitan level; similarly, the metropolitan plan should be coordinated with state and national plans - particularly those affecting transportation, public facilities and natural resource programs and functions that are metropolitan in scope. To this purpose, there should be a legal requirement that the agency, when it is a public agency, review the content, conformity, or compatibility of all planning and development proposals affecting the metropolitan area.

"This does not suggest the power to veto such proposals, but the necessity of comment on them. Applications for support of state and federal agencies made by municipal and county governments should be submitted to the metropolitan planning agency for similar review and comment. In the same fashion, state and federal governments should seek such review of their physical development projects at the initiation of planning.

"C. Metropolitan Planning Functions

"The range of metropolitan planning functions will differ from area to area. There are certain basic functions, however, which the metropolitan planning agency should perform in any metropolitan area. These are:

1. Research
2. Planning
3. Cooperation and Coordination
4. Advice and Assistance"

disposal, open space, and recreation.

Flood Control and Drainage: The six counties and our Commission have a five-year cooperative program with USGS to map the flood plains of the metropolitan area as a basis for future comprehensive flood plain zoning, with a metropolitan plan framework, referenced to county plans and municipal plans. Half the cost is being met by the counties and half by the federal government, with overall supervision and coordination provided by the Metropolitan Planning Commission.

Waste Disposal: The six counties and the local communities have cooperated with the Planning Commission and its staff in metropolitan-wide investigations of needs, methods, and locations affecting waste disposal presently and until 1980. The findings are being readied for publication in a report to be issued in late spring of this year. One finding is that more than five million tons of garbage annually, in excess of available disposal sites, will exist, by 1980.

Soil Resources: Agricultural or other open lands constitute about three-quarters of the land area of our six counties. As growth continues, urbanization moves into these lands (at the rate of about 25 square miles per year). Agricultural soil classifications have been "converted" to urban categories for utilization in land use planning, urban planning, and rural planning.

Open Space: Open space needs, "markets", and locations have been comprehensively studied in two area-wide investigations, to serve in metropolitan planning and local planning. The Commission has formally adopted, as a guide to counties, local communities, and all other governments concerned, a statement of open space policy for the metropolitan area.

Water Resources: Initiated in 1962, and to be completed the end of this year, is the Commission's study of ground and surface waters of Northeastern Illinois. This is being undertaken jointly with the Water Survey, Geological Survey, and Public Health Departments of the State of Illinois, with assistance of a $200,000 Housing and Home Finance Agency 701 grant.

The metropolitan planning studies I have referred to (and others) have had the benefit of continuing review and examination by technical advisory committees on which are represented city, county, state, federal and university people - public officials, professionals, consultants - serving without compensation over a period which now averages three to four years per committee member. Among them are outstanding public officials, faculty members and professional practitioners in environmental health and engineering. Municipal, county, To the above AIP statement were added certain amendments which I will read as having an interest to a meeting which is statewide, and includes representation from other states and the federal government.

> "D. Substantive Program Amendments
>
> "Metropolitan planning should take proper account of natural resources. Natural and man-made resources are so interrelated that the former must be given the same degree of attention by the planner as is given to the social and economic aspects of planning.
>
> "In urbanizing regions of metropolitan character, the formerly distinct urban, agricultural and natural components of the environment are becoming completely interwoven. Current planning theory and practice, therefore, should be a combination of both urban-centered and resource-centered concepts. Modification of natural elements into commodities (resource development) and into an environment for living (urban development) are intermixed processes and should be planned together.
>
> "It should be the concern of the metropolitan planner to establish effective relationships with the various resource agencies just as he does, for example, with highway departments, in order to satisfy the implications resulting from the development, use and conservation of the resources of the area. Land use and water planning, for instance, must go hand in hand. River basins and watersheds should be recognized as significant elements in metropolitan planning frameworks, requiring close collaboration between the metropolitan planner and the resource planner."

I should like now to offer a few illustrations of metropolitan planning in action from our experience of the past several years operations of the Northeastern Illinois Area Planning Commission. This is an agency whose program got under way in the spring of 1958, having been established in 1957 by the Illinois legislature. It serves six counties, nearly 1000 units of government. This number includes about two hundred and fifty municipalities and several hundred school districts. The six-county metropolitan area has a present population of 6-1/4 millions and is expected to reach eight millions before 1980. Chicago is, of course, the mighty central city of this urban region, one, if you will pardon the expression, of Texas-like proportions and magnificence!

The Northeastern Illinois office early established work priorities in the following subject matter areas: land use, soil resources, flood control and drainage, water supply and waste state, special district governments, industry, and private foundations are the principal sources of our finances, and we have received a number of federal grants. Several HHFA 701 grants have been obtained with additional ones from this source in prospect.

What is necessary to more progress - locally, statewide, nationally - in urban planning for environmental health?

1. An excellent place for us to work together more effectively, each in his proper role, each contributing from our own sector of the urban planning or environmental health "front," is where the work is being done, namely, "in the field." I commend to you in this connection the recent, but not quite "new", metropolitan planning agencies. Federal and state people, as well as municipal, county, industry, and university people are coming together, are joining efforts, and are cooperating on both big and little problems and appear to like doing so. It appears to be proving something important and it seems to be getting us somewhere!

2. There is a real need to understand comprehensive planning better, and to not be too ready to believe this kind of planning is all "just engineering;" or that it ought to be engineering. The American Institute of Planners with three thousand members, has an organization capably organized and responsibly directed. The Institute of Planners is providing leadership in urban and regional planning, and performing services the country needs. Its professionalism is respected. Its competence is acknowledged. The country's top universities are training planners to provide for the present and expanding future needs of our governments and the communities they serve - and where there is an increasing amount of work to do of the kind they are equipped to do. The number of planning consultants also is increasing. Mayors, managers, councils and planning commissions in all our states are seeking, employing, and using planners trained and experienced in the preparation of comprehensive plans, who administer these general plans, along with zoning and subdivision regulations. Their offices prepare the initial planning of the capital improvement programs of our communities. Architects and engineers, who have been attracted to some aspects of the general planning work active in many urban places today, need to examine if these careers are what they are technically prepared for and really want. Often it is more realistic to think of it as a new and wholly different career. Planning today is a full time and rigorous profession. It is becoming more specialized, rigorous, and exacting - like the other technical pursuits.

3. Urban planning and environmental health today require many professionals working together in teams, in work of substantial scale and complexity. The scale is steadily increasing

and so is the complexity. Most of the work in urban areas (public work is referred to; private trends are similar) requires the cooperation of city, county, state, and federal officials - both on technical work and in administration. Highways, water resources, recreation, agriculture - where does one agency "cut out" and another "cut in," is the question!

4. Comprehensive planning should be given much more use than it has had so far in these programs we are here to discuss. In Illinois we felt we needed more clarity and firmness in our comprehensive planning concepts, principles, practices, and procedures employed. We put something together ourselves on which we agreed, and published it - a manual of practice and procedure It will help us, we believe, get the better legislation we need in Illinois. We hope it will clear up some of the confusion in our ranks, as well as on the part of those with whom we must work, on what planning is and how it ought to be done in our state.

A basic text of another type, very useful for planners and engineers, is the Northwestern University conference proceedings of 1961. Planners and engineers were invited to Northwestern in roughly equal numbers, presented papers on all the "hot" subjects, discussed each other's speeches, and prepared joint recommendations. I believe all went home from that conference better engineers and better planners and better professionals all around, if, as I have been advised, a professional is defined as one who serves the public and the public interest.

GOVERNMENTAL ASPECTS OF METROPOLITAN PLANNING

Stuart A. MacCorkle

Two-thirds of all Americans now live in metropolitan areas. Practically all of this country's population growth during the last decade occurred in metropolitan areas. These large-scale urban areas are essential to our national economy -- they are dominant in our cultural, educational, and scientific life today.

We find as of the 1960 census that 75 per cent of the Texas population lived in cities. Texas ranked ninth as an urban state, with 46 per cent of her population living in cities of 50,000 and over. It is worthy of note that for cities in this group, according to the U. S. Census of Population for 1950, approximately 51 per cent lived in the central cities, 7 per cent in the fringe areas, and 42 per cent outside the urban area. In 1960, 62 per cent of the population of this urban group lived in the central cities, 17 per cent in the fringe areas, and 21 per cent outside the urban area. Within a decade in those Texas cities of 50,000 and over we find an increase in population of 22 per cent within the central city, while the increase in population for the fringe areas advanced by 143 per cent. Texas ranked second in the nation in suburban population increase between 1950 and 1960.

Approximately one-fourth of all Texans live in the state's four largest cities. These four centers all showed marked population increases between 1950 and 1960. Houston increased its population in the decade by 57 per cent, Dallas by 56 per cent, San Antonio by 44 per cent, and Fort Worth by 28 per cent.

Governmental Structure - It is the history of governmental institutions that they arise in response to a felt need, that they are launched and begin to function when man exerts his ability to invent and adapt. For several decades it was thought that the expanding metropolitan problem could be solved by such means as: annexation to the central city, city-county consolidation, or city-county separation. More recently metropolitan federations have come into existence, the two most publicized examples, perhaps, being Toronto, Canada (1953) and Dade County, Florida (1956). A present-day trend in metropolitan areas is the emergence of co-operative associations of local governments, such as are to be found in Philadelphia, Baltimore, Detroit, Ithaca, or the San Francisco Bay area. These groups, without legal authority, work in their locality to combat the ill effects of governmental fragmentation.

I believe it is safe to say that no identical pattern has been followed by any two areas. In spite of many similarities, each is unique -- no "organizational model" has developed. Apparently every metropolitan area considers its own peculiar needs and fashions its reorganization plan accordingly. As a matter of fact, the movement for integrated metropolitan government up to the present has largely been a theorists' movement. The problem has been finding feasible methods of getting some kind of areawide government adopted.

Without a doubt there is a need to improve the governmental organization of our metropolitan areas. Communities which are already related by geographic, economic, and social ties will be best able to achieve teamwork in their planning if they are linked governmentally.

Local, state, and federal governments should encourage comprehensive metropolitan planning and action. All governments should co-operate to improve programs and policies which have an impact on the planning and development of metropolitan areas. The states and the federal government have the responsibility for facilitating adjustments in local government so that local government may better handle the metropolitan problem. Most states need to unshackle their local governments so that they will have more latitude in meeting the problem of governmental structures. But we all need to remember that the degree to which any governmental reorganization takes place will depend upon the officials and the citizens of the locality.

To me, it is incumbent upon the civic and governmental leaders in each metropolitan area to accept the responsibility for leadership in coping with metropolitan problems, as well as, with the problems of their own separate local communities. It rests with our governmental institutions to translate programs and plans into reality. Action is essential. With qualified manpower in public office and improved governmental institutions in operation, one of the great barriers in the way of metropolitan planning is removed.

Our problem is one of inventing an adequate government capable of meeting the challenge of the urban age. Despite our rapid growth, our research, and our many discussions and conferences, we are still by and large in the early stages of a complex urban development government-wise. As taxpayers, we can ill afford the inefficiency and waste caused in part because of the great number of competing local units of government -- the existence of which makes metropolitan planning a more difficult task.

Civic and Business Leadership Needed - Metropolitan planning cannot be limited to governmental action alone. Government provides the formal framework through which a community or area functions. The planning process embraces all community activities, both public and private enterprises. All governmental and non-governmental organizations have a stake in the metropolitan society.

It is often true that in order to achieve the results of sound metropolitan planning a new form of government with metropoliswide authority may be necessary. But the planning process cannot be delayed until this form of government takes shape. Every metropolitan area can organize a metropolitan planning agency, even if on an informal basis, to carry out planning objectives. Under this leadership metropolitan problems can be studied and planning encouraged. Such groups help move governmental institutions to translate plans into reality.

There is a precedent for those who wish to move ahead in this direction. One finds an increasing number of formal and informal organizations active in our metropolitan areas today. Some sponsor studies and research, while others have gone further by reaching agreement on proposals for action and then taking the necessary steps to bring them about. Some of these groups are made up mainly of business and professional men. They range from the informal gathering, such as Los Angeles' Town Hall, to such well organized groups as the Bay Area Council in the San Francisco area and the Greater Philadelphia Movement or the Pittsburgh-Allegheny Conference.

The solution of the metropolitan problem is not the province of government alone.

Our Suburban Civilization - We are now in the process of building our first suburban civilization. What are we building for? How well are we building? It is probably true that in the suburbs of today we have more space, fresher air, better schools, improved housing and health conditions than were present in the city or the countryside when our parents grew up. On the other hand, the child of today is missing the experience of being brought up as an American. At least, not as we have known it.

We are segregating our society into thousands of modern ghettos, each housing only the poor, the blue collar workers, the middle class and the rich. We are constantly being reminded of the racial segregation to be found in the South. As you travel about the country, and especially in the East and North, take a look at the economic segregation which is taking place. Often it extends to ethnic, religious, and social groups also.

Our parents and many of us during the growing-up process got our ideas tested by being thrown into association with different customs, standards, colors, and creeds. This was a maturing process, so that when we stepped out into the adult world, it was not altogether new. We knew something of what we would find and how to handle it. Is the same going to be true of our sons and daughters who are the products of suburban America?

The primary task of both the citizen and the government official is not to grow buildings and landscaped acres, but to grow people. This our metropolitan planners need to keep in mind.

The above are at best a few rambling thoughts slanted in the direction of our metropolitan complex. A look into the future is never clear enough for accurate perception. No one can be sure of what lies ahead, so let us humbly recall the Book of Proverbs, Chapter 27, Verse 1: "Boast not thyself of tomorrow, for thou knowest not what a day may bring forth."

PROGRESSIVE PUBLIC HEALTH SERVICES

Dr. Paul Q. Peterson

When I was asked to address myself to the subject "progressive public health services", the word"progressive" at first gave me real difficulty. Since I have youngsters in high school and college, my immediate thought was of progressive jazz and abstract art, both of which had been defined to a Victorian father as progressive art forms. My conditioned reflexes from these educational experiences produce a response that can only be described in polite society as excruciating. Were we now to have progressive public health too?

At length greater reason prevailed and I remembered "progressive patient care." This, you recognize, is descriptive of a system of hospital patient management that ranges from intensive care through intermediate care to minimal care. This gave me a logic for presenting public health services that is apropos of the subject of the Conference -- Urban Planning for Environmental Health.

In some contexts the word "progressive" conjures to mind the changing of methods in order to meet what are considered to be more enlightened goals. Or, at the very least, changing methods so that meeting the same goals can be accomplished more efficiently. Both the management of patients in hospitals and the practice of public health, are and must continue to be progressive in that sense.

But when we speak of progressive patient care we mean more than that. We mean that the patient's physician determines, by bringing to bear his scientific knowledge and professional skill on that particular case, the level of care that the patient requires. There can be too much care as well as too little. There must be an individualized judgment at intervals, and the facilities for providing the needed amount of care must be available.

In much the same way the public health specialist must exercise scientific knowledge and professional skill in assessing and dealing with public health problems. It may not be an orderly progression of solving first one problem, or putting it on minimal care, and then turning our resources onto the newly developing problems. Sometimes that dread disease that used to be known as "complications" sets in.

Look, for instance, at our friend, communicable disease control.

Ever since the history of man has been recorded it has been chaotically affected by infectious disease. Epidemics and pandemics have swept across continents, disrupting trade, interrupting economic and social growth, and determining the outcome of wars.

It has only been within the last hundred years that methods of control were developed. Since then, through immunization procedures and manipulation of environmental factors, such traditional scourges as smallpox, diphtheria, typhoid, and malaria have been brought to levels of almost unbelievable control.

One result of this success was that many people believed the communicable diseases could no longer give us trouble. They argued that the control programs should be transferred to "minimal care" while we turned our attention to more pressing matters.

This, indeed, appeared to be a rational, logical proposal. It seemed to be progressive public health. The trouble was, however, that it did not give enough weight to one of the principles of microbiology.

In 1873, William Parr expressed that principle this way. "The infectious diseases replace each other and when one is rooted out it is apt to be replaced by others which ravage the human race indifferently whenever the conditions of health are wanting. They have this in common with weeds and other forms of life, as one recedes another advances."

That was an early observation; here is a later one. In 1959, Dr. Rene Dubos wrote, "In the field of infectious disease we need not go far for examples because the future is already with us. While mortality from acute bacterial infections is at an all time low, disorders of complex and ill-defined microbial etiology loom larger and larger on the horizon."

It would appear, then, that as long as a potential agent of disease remains in an uninterrupted cycle, it may remain nonpathogenic or only mildly invasive. However, alter substantially the environmental or animal moieties which have governed this cycle so that its relationships are disequilibrated and a new, invasive disease producing agent may spin off. Such a pattern of biological adjustment will probably go on indefinitely.

Another complication in communicable disease control is the speed of modern mass transportation, a fact that is creating new problems for epidemiologists. This is well illustrated by the last pandemic of influenza.

In April 1957 epidemic influenza appeared in Hong Kong.

Apparently originating in Central China, it spread rapidly from Hong Kong throughout Southeast Asia.

Virologists quickly determined that the strain, although related to a known influenza virus, was quite different serologically. On the basis of this and past experience it was possible to foresee that a pandemic would occur. The pharmaceutical industry mobilized to produce a vaccine, but by June the virus had already reached the United States. Although we are quite sure from retrospective studies that our vaccination program was helpful, it could not be achieved quickly enough to break significantly the character of the epidemic in this country.

The unique problem, however, was the second wave which came the following year, 1958. This was not accompanied by the usual indices of epidemic influenza except for one -- the excess mortality was nearly as great as it had been during the first wave the year before.

It became apparent that while the virus was still circulating widely among school children and young adults, it was selective in its attack on older people, preferring the elderly and the adults with chronic disease. The progressive public health that is now being practiced is the annual campaign to insure that elderly people, cardiac patients, and other individuals at high risk are regularly immunized.

Influenza is only one of a number of communicable diseases that are giving us trouble. Other examples are found in shellfish transmission of infectious hepatitis, in the stormy outbreaks of shigellosis, salmonellosis, and other enteric disease-producing agents. Traditional generic control measures are inadequate and progressive public health requires sensing devices applicable to modern food technology that are acceptable to the food industry and our economy and yet accurate enough to protect the public.

We are far from our goal, but our progress in communicable disease control has been substantial. One part of this battle has been to achieve a healthful environment. In the early days the only purpose of environmental health programs was to fight communicable disease, but over the years we have learned the great importance of environment in the control of other diseases and disabilities. Here, too, progress has been substantial.

It is hard for us to imagine how dirty cities were up to, say, about a hundred years ago. Prior to the mid-nineteenth century the only cities that got rid of their accumulated filth were those that burned down and started over again. Today there are pockets in urban areas where such conditions exist, but in general the sanitary engineering of solid and organic waste disposal is good.

In the meantime, while we have been making good progress in our attack on the more traditional hazards of environment and their modern variations, we have been adding to the overall problem some real startling refinements of our own. Radiation, for one.

Predictions of the use of atomic energy for power are that over the next ten years it will increase ten-fold. Radical innovations in its use for other purposes can also be expected, for this is one of the most powerful tools known. Already the early rare hospital use of radium in cancer therapy has become almost a routine diagnostic or therapeutic procedure which uses an entire spectrum of isotopes on more than 500,000 patients annually. At the same time the problems of the disposal of radioactive wastes have assumed substantial proportions. Then, there is the threat of exposures which we have not been able to control at the source, such as fall-out from testing. When all of this is added to the exposures coming from the use of X-rays, both for medical and industrial purposes, one can begin to appreciate the need for systems of monitoring our environment and for the establishment of baselines for human exposure. We need procedures that will signal significant public health issues. I do not need to tell you that these are not only highly technical matters, they are also heavily charged with emotion and politics.

Another growing public health problem is air pollution. In a recent study reported under the title Motor Vehicles, Air Pollution, and Public Health, Prindle and Yaffe found that in 1960 there were 3,625,000 motor vehicles registered in Pennsylvania and that during that same year 3,377,892,000 gallons of gasoline were sold in the State. Extrapolating from their data, they calculated the volume of contaminates discharged from motor vehicles in Pennsylvania during that year to be 5 million tons of carbon monoxide, 700,000 tons of hydrocarbons, and 300,000 tons of nitrogen oxides. Some of these emission products, when mixed in the urban atmosphere and irradiated by sunlight, take part in complex chemical reactions. The end products appear to be more dangerous than the original discharges and may be harmful even in low concentrations over extended periods. The pursuit of answers to this problem is taking today's public health specialists into studies of such once remote subjects as modification of engines, fuels, and fuel systems to try to find at least some partial solutions.

It is not necessary to look into these exotic health problem areas to find environmental problems that we have been creating for ourselves.

Within the memory of many of us, most families in the United States lived in houses with 5 rooms and a path -- the path leading to the family privy. Today most families live in dwellings with 5 rooms and a bath. How many houses are there today with from $300 to $500 invested in a useless septic tank in the back yard? -- the lots too small or the soil in which they are buried completely unsuited to this type of waste disposal. All because adequate planning had not been done by responsible authorities to insure adequate sewers and zoning to protect the public health when intensive suburban development took place.

Or have you yet had the startling experience of drawing from the tap a glass of water with a "head" on it? Let me assure you it doesn't hold promise of replacing beer, and it gives a disturbing appearance to a glass of bourbon and water.

What other types of domestic and industrial wastes, in addition to those now causing such difficult problems for sanitary engineers and chemists struggling with water pollution problems, will be discharged into our waterways tomorrow?

Progressive public health? If we didn't have it, our society would have the worst case of Buerger's disease on record! That's a disease, you know, that affects the capillaries of the extremities so that they can no longer bring blood and essential body fluids to the cells. Cellular death follows and in far advanced cases gangrene ensues and amputation is required.

Despite areas where there is evidence of inadequate service, overall progress in public health has tended so far to keep pace with need. In my opinion, man today, given time, can solve the scientific and technological problems necessary to control almost any environmental or personal health problem.

Dubos stated it slightly differently when he said, "Man can eventually become adapted to almost anything, but adaptation demands more time than is allowed by the increased tempo at which changes are presently taking place."

That, if change is slow enough man can adapt to it, is an immunological and physiological probability that few would argue against. However, it implies a passive adjustment. I prefer to think that by exercise of his intelligence and by taking action man is capable of solving his health problems far more quickly. Maybe even quickly enough to permit him to survive. It's worth a try!

There can be no question but that it is a race against time. The leisurely pace of the past may be material for our nostalgic memories, but we had better not linger too long with them. The lead time we presently enjoy through research is preciously small, if indeed we have any left at all.

I think it is fair to say that our most urgent need at this time is to find ways to use fully the knowledge we have now and will gain in the future. Scientific and technological research is well organized and productive. We can be confident that it's progress will continue. What is by no means certain is that we will make good use of it. Knowledge may be power, but only if it's used.

There are no problems on which intelligent and informed action is more urgently needed than those presented by our large and growing urban areas.

There are experts who have made extensive studies of these problems and have come to the conclusion that local governments as now constituted cannot handle them. They say, first, that the problems are spread over the boundaries of so many jurisdictions that they cannot be dealt with in toto as they must be if they are to be dealt with effectively. Examples most frequently used include mass transportation, water and air pollution, and land-use control.

Another reason is the difficulty in paying for what needs to be done. Most big cities and even many of the suburbs are already raising all the revenue they can from currently available tax sources. And, further, even though many of the facilities that are needed, costly as they are, might well pay for themselves over the years, the fact that benefits would accrue to several jurisdictions makes economic justice in bearing original costs a particularly thorny matter.

In view of the fact that large metropolitan areas are here to stay for the foreseeable future at least, and that most of them are likely to continue to increase both in size of population and geographic area for some time to come, it is important that we face squarely the problems they present. It is important that we examine the courses of action open to us and arrive at a conscious choice. Because we *are* going to make a choice one way or another and we dare not make it by default.

Nor can we allow ourselves the easy excuse that our problems are unprecedented and therefore of greater difficulty than any society has faced before. It is quite obvious that all previous generations were faced with unprecedented problems, too. Some did better than others in handling their problems, and quite frankly how well our generation does remains to be seen.

But even if our problems are harder than those of the past, it doesn't give us a real excuse. We have all the accumulated learning and experience of the past to deal with them along with whatever we ourselves can add. We have all of their technologies plus our own improvements and new developments. We're so much smarter -- we keep telling ourselves.

Decisions we must make, and in order to implement them intelligently, plan we must. But there are some other compelling reasons why we must plan.

First, we are short of trained health manpower of all kinds. We cannot tolerate waste and inefficiency in its use.

Second, the specialization of the services and facilities that will be needed dictates as never before their efficient coordination over wide areas if they are to serve their purpose.

Third, there is a limit to how much of our national substance we can devote to health services, a circumstance that makes their efficient and effective use and the avoidance of redundancy literally a matter of life or death.

It seems to me that there are several ground rules that must be observed if planning for urban health is to be successful.

First of all, there must be a uniformity of purpose -- a true dedication to the achievement of a better urban environment. Wrong headedness can be tolerated because in the long run it generally yields to fact. Personal greed cannot be tolerated because it yields to nothing.

Second, although we all have our parochial interests and our individual affiliations, it must be apparent to all of us that the objectives of planning for public health must be catholic and non-partisan.

Third, the planning effort must enlist the participation of the best minds of the community, both private citizens and officials.

Fourth, the planning group must have available to it adequate data to enable it to explore problems thoroughly. It would be hard to overstate the importance of this.

Fifth, it must be kept in mind that all we do in public health has just one purpose -- benefit to people.

Progressive public health? There has probably never been a period of such accelerated progress. Our achievements may not be as striking as a man in space, but I am proud to be a part of a group that is making such notable contributions to man's well being.

The public health profession encompasses the talents of about 250 different sets of skills ranging from economics to gamma ray spectroscopy and from sanitarian to meteorologist. We offer these skills in good faith and with willingness and eagerness.

We live in a world of excitement, complexity, uncertainty, speed, and change. Under such circumstances it is easy to lose perspective, to lose sight of objectives. Conferences such as this one give an opportunity to take stock and to capture individual and group purpose. We hope that from this meeting and others like it, the major components of organized community life can more effectively coordinate plans to alleviate or prevent the many health hazards, old and new, that face populations living in an urban environment.

WATER AND SEWERAGE IN METROPOLITAN AREAS

Henry J. Graeser

It isn't necessary for me to tell this group that water supply is literally the lifeblood of a community. Around its availability all of the other facets of community growth evolve, and are made possible. True, water in itself can't make a great metropolitan area, but neither can an enlightened and energetic citizenry produce water where there is none. There are literally scores of communities in the United States now which are either facing a limitation of growth by reason of an inadequate potential in water supply or will soon be confronted with providing more water than they have planned for or can produce. During the great drouth of 1951 through 57 many cities who thought they had a water plan were awakened rudely to the fact that they had not adequately planned ahead. Practically everyone has heard of Dallas' water problem at one time or another, so, while I don't like to dwell on this, perhaps it is best to illustrate with our own example.

Dallas was not exactly a case of a city which had not planned. The reservoirs on the drawing boards could not be built at the appropriate time because of World War II. Even with crash efforts after the war, they were not completed in time, and as a result the drouth began with two new major reservoirs empty and useless. With the floods of 1957 these were filled in a matter of a month, and still would be adequate in size to carry the city at its present population through another record drouth without a repetition of the crisis of the 50's. The fact remains that the drouth and the emergency provided the impetus by which a city, with great leadership and will to do, has set about planning for its water future through the year 2000. Not only has it planned, it has built. Dallas will soon complete the second of two additional new reservoirs which together will more than triple the existing impounded supplies. This is just one phase of planning ahead for a metropolitan area.

We sometimes overlook in these grand plans the little work-a-day things that really make them a lasting effort.

Reservoirs and the availability of impounded supply are certainly vital, especially in the light of water laws which give to applicants permanent appropriative rights. Those cities which can justify receiving such appropriations on the basis of past growth and expected future growth are required to take action to firm up these requests by building the necessary reservoirs and supplies. At the same time, however, planning must proceed for the myriad of facilities that are required to deliver water to the faucet.

On a broader scale there is a matter of planning the metropolitan area itself. Annexation laws in Texas have allowed a rather confusing pattern to arise in that every major city soon has around it a ring of satellite communities. This has happened even though Texas' annexation laws have been the most liberal in the United States. The fact remains that few central cities have been bold enough, or could foresee the future adequately enough to carve out the area which they desired to annex and could serve economically. Most found themselves with a complexity of drainage areas, interlinking with other communities, which involved very difficult intercity problems of stream pollution, sanitary sewers, storm drainage, and highway thoroughfare planning. The water supply picture is difficult too. Our water lines coming from outlying supply sources must pass through satellite cities enroute to the central city. These problems can offer almost impossible barriers unless there is some concerted effort given to coordinating planning among the central city and its satellite communities. A central city must offer a high degree of cooperation and assistance to these communities with their growth problems.

Approaching the problem of community planning in a metropolitan area, I think the most pertinent factor to be considered is not water supply, but sanitary sewerage. We all know that good sanitary sewerage service on an ultimate planning basis demands a gravity flow situation. Thus, a wise basic rule for annexation is to avoid annexation outside of your own drainage area. To do so simply means pumping back into your major drainage area, or purchase of sanitary sewer service from the adjacent downstream community. Of course, there are solutions to these problems, but intercity sanitary sewer contracts are most difficult to write, and especially difficult to interpret and operate under in an equitable manner. The matter of storm water infiltration, industrial wastes and the myriad of other problems coming into the sanitary sewer are going to make this even more difficult as the years go on. I think the basic rule is evident that every city be so planned that it can serve into a common desirable point of discharge. All of these cities should work towards a metropolitan sewage treatment facility.

Dallas basically adopted this proposition in establishing its own city limits boundaries. In every instance we have hesitated before annexing any area outside our drainage area until it was evaluated from the standpoint of cost of sanitary sewer service. How well would it fit into the ultimate plan of interceptors? Some of our adjacent communities have not been this cautious in their policy and as such have annexed into Dallas' drainage area. In each of these cases it has been necessary that they negotiate a contract with the City of Dallas to serve them where the capacity of our sewer was adequate. In some instances we have had to say no to such requests because of the exorbitant cost involved to increase a lengthy and expensive trunk interceptor in order that the additional drainage area could be taken on. Perhaps it could be said that it would have been better if Dallas had planned for these communities when it built its interceptor. Unfortunately, when the original facilities were built, the satellite community did not even exist in many cases, and Dallas itself did not envision annexation of the river basin as far north as the city has now grown. We simply couldn't see that far ahead. But, neither are the satellite communities as wise when they "bite off more than they can chew" by annexing huge areas of farm land in the county which they will find impossible to serve any time in the near future with their limited populations' ability to finance. Of course, everyone has 20-20 vision in hindsight. There are many courses which could have been taken to plan together, but nearly all of these would have necessitated a growth outward from the central city involving for the most part completion of its growth prior to extension of the major interceptors into the outlying suburban communities.

Naturally, there seems to be no sure-fire procedure for a completely orderly growth of a metropolitan area. Problems such as I have described are going to arise. Citizens of communities developed on cheap farmlands on the outskirts are going to band together and form cities. With their small size and limited resources they are going to make mistakes and have many costly reconstruction projects to contend with in their ultimate development. I would be the last one, however, to say that any group of citizens shouldn't have the right to move to the country and build their own town if they want to. I hope, however, as time goes on, more and more of these community builders are going to realize the advisability of seeking the best professional and technical help available in planning their new community. I hope they will adopt codes of construction and specifications for water, sanitary sewers, streets, storm sewers, and others. I hope they will retain competent engineering firms to see that the work is done correctly in accordance with these good standards.

We have one community in the northeast portion of Dallas County which has done an outstanding job overall in building and planning its community. It was no more than 200 population when it formed its community and carved out the major portion of the area which it intended to encompass in its future city boundaries. The presence of an expressway through the community assured its growth. In the initial phases of the formation of their city, they sought all of the advice they could from successful operations in the central city. They operated under established city specifications in all phases. They initially established a high type building code which they enforced. They retained a city plan engineer. Not just any city plan engineer, but the most competent and experienced they could find. With all of this good advice and with a group of top citizens on their Council, acting as a Board of Directors with a competent City Manager, this community has built an outstanding satellite city. In the course of doing this, they have also built well and in such a manner that their facilities will last.

Some other cities in the metropolitan area have not planned so well. Sometimes men of limited experience who were earnest, sincere, and honest, but nevertheless suspicious of city ways, failed to take advantage of the experience which was available to them. They vacillated under the pressure of developers who gave glowing promise of rapid development of the entire city with added tax income if standards were not set so high. The result was inadequate water systems, poor construction of sanitary sewer lines, and inadequate area planning of the sewer system for the ultimate service. Such lines as were built were not deep enough to fit in any master plan of drainage in the area without pumping, or reconstruction with larger and more expensive interceptors. These communities will soon run into many other difficulties. Streets will deteriorate; water lines will be inadequate to provide fire protection of the standard required; sanitary sewer systems will leak badly, collapse, or overflow in the streets and gutters throughout the community. It is an amazing thing what happens when these things start falling apart. If you don't believe it, go through a community which does not have curb and gutters and note how difficult it is for such a community to have pride in their lawns and houses. We have noticed in some of our poorer areas of the city a tremendous lift in neighborhood vitality when a paved street and standard utilities are installed. Everybody spruces up because the street looks nice and they want their house to look nice with it. On the other hand, hot top streets without curbs, gutters, or adequate drainage with standing water soon reflects itself in ruts, splashed mud, untidy lawns, and, together with it, untidy downhill houses.

The forces, however, are coming together in terms of public education, establishment of better standards, and enforcement of these standards. The pressure is coming from all sources - from the Federal Housing Authority, from the State and Federal Health Departments, from Fire Underwriters, from municipalities, and above all from the citizens themselves. In the Dallas area it is very difficult to find someone who will buy a house with a septic tank. They know now that this is a poor investment. In nearly any R75 area of zoning a complete community of septic tanks will soon saturate the soil in at least a portion of the area. Those people who are affected face a very serious problem. The community cannot afford to bring sewerage into this area for only 10% of the customers involved. On the other hand, the other people are content and happy although they feel sorry for the Joneses down the street. They will not cooperate in any program of sewer line extension because the problem is not widespread enough and does not affect them sufficiently. The result is a health menace and a loss of property value of the home owners affected.

Those of you who would be interested in loans, I think, can see the impact of such a situation. I have seen many instances where a septic tank could simply not be repaired because of the slope of the ground and trapped moisture above a rock formation which resulted in congregating the absorption water from houses uphill which were having no trouble. There was nothing these people could do about improving the situation. They could not finance the cost of an advance to the municipality to extend sewerage a mile or so into their property, and neither could they find a means by which to improve the operation of their septic systems. Neither can the city finance such an extension without assessment.

In many instances it has been necessary for us to go into such areas, and with the assistance of the Health Department, place a complete sanitary sewer in the area and then by law force each and every one of these people to connect to the sanitary sewer. When this happens all these people still pay thru their mortgage the $300 or $600 involved in the cost of the septic tank, and in addition thereto must pay the connection charges and pro rata share of the mainline costs plus the expense of turning their plumbing around from the backyard and carrying a new house service line out to the street. What a waste this is and all from poor planning. Those of us responsible for sound development are caught between acquiescing to the demands of property owners to sell their lands as they see fit and future property owners who in innocence trust us to protect them against such an event. While we certainly do not like to tread upon the rights of land owners, look at the wrong that has been done to many more people as a result of our compromise.

I might mention, too, that one of the more serious comprises in terms of homes has been in the area of the house building sewer itself. Many codes, and even FHA standards, allow substandard materials to be used in this particular area. The house building sewer in length is actually two for one for the main line sewer in the street. A city, which in the operation of its municipal sewer system, spends additional money to build a tight infiltration-proof sanitary sewer, but yet does not have a plumbing code which will require the same high standards in the house building sewer is, indeed, wasting its effort. The house building sewer is shallow, it is often laid by unskilled laborers, and inspected only one time, after its construction. I can tell you that even with full-time inspection on mainline sewers we cannot always uncover all of the errors in construction which occur. How, then, can a city plumbing inspector expect to make one quick visit to a site to approve a house building sewer and know that it will be properly backfilled so as not to crush the pipe and will, indeed, be water-tight.

The one basic thing which can be done is to require a water test on every house building sewer to assure that it meets the same standards as the plumbing inside of the house. For the life of me I cannot understand how our plumbing codes can be so tight inside the house, and yet, as soon as the sewer gets two feet outside the house, everyone relaxes and says, "well, what happens from here on is not important." If we look at this with the proper perspective, the truth of the matter is that what happens inside the house in terms of malfunction of the house drainage system affects only the owner and occupant of that house. What happens outside the house in terms of the drainage system affects the entire area, and especially the neighbor down below him who is going to be flooded as a result of the infiltration into this man's house service as well as others. I don't say that the standards of plumbing inside the house can be neglected. Certainly not. But, there certainly is every reason to place as high type of inspection and standard requirements on the outside facilities as there is inside. There is available a National Research Council Report on this particular problem of house building sewers. It deserves careful review by all echelons of government who have responsibilities in the home building field.

Now that I have discussed the general problem of area development, let me turn again to the problem of water supply design for a community. The data furnished me by the Public Health Service, and is evidently in the files of most of the participants here, is an extremely good guideline to water supply development for a new community. The factors described here are probably quite adequate for initial planning of a garden community. It is to be kept in mind, however, that these rates do vary between areas. A semi-arid area such as Dallas will have higher water requirements than these. Lawn sprinkling and lawn care along with air conditioning and other summer usages have boosted many of these standards, especially the peak-hour requirements.

I thought perhaps you would be interested in seeing the standards which we have now adopted for design of our area systems which have come out of detailed studies by various groups and classes of homes in the city. These factors on the whole represent approximately a maximum day which is double the annual average, and a maximum hour which will again double the maximum day. Smaller satellite communities around Dallas experience maximum days more in the order of those described in your standards. It is interesting to note, however, in our studies the variation in water demands in comparison to the value of a home. We have made studies of residential, industrial, and commercial areas of our city. We see a striking difference in the patterns of these types of users. These are the kind of factors which you must have from adjoining communities which have experienced some growth and are similar in nature and climatic conditions to yours.

From here, knowing, you hope, the area which you intend to make a part of your city, you can begin the planning, for at least a reasonable period of time ahead, of the master transmission system which will be required to serve your community. Usually, because of lack of funds and ability to finance, original lines are too small. As a result many of the lines built in the first growth of a city will have to be rebuilt or reinforced. Of primary importance, however, is a basic area system which will meet the fire underwriter's requirements for community development. These are your best standards because fire protection itself will soon be secondary to the peak hour requirement demands on this system for other uses such as lawn irrigation. As the city grows, the diversity of fire hazards will take care of any inadequacy from this standpoint which might be expected during a heavy summer sprinkling peak. Too, the reinforcing grid which you must plan and later build will come into play at this time.

Now, it is helpful to know that if you have an area of 10 square miles, you are going to need, at ultimate development, a certain size main - say 36". At your present stage of development you cannot finance, nor do you need this size of main. It is most important, though, that you know that a main of that size is going to have to go into this street and that a place be reserved for it to be constructed. This is the basis of your city master plan. Today hydraulic analysis of a water distribution system is a relatively inexpensive and rapid thing, even for small towns. There is no reason why you cannot plan your city to its ultimate size and operate its future water system on the computers which are now available for this purpose. At Dallas we have a 1980 plan. This was conceived in 1960, and using our projected population estimates and urban plan, we are able to get quite accurate estimates of where population growth would occur and what type of development there will be in the community. Using the basic field study data which we have here, we are then able to establish demand points throughout the system around which the future plan could be designed. Having received this original master plan, the important thing was to keep it up to date, so each month all billing information is categorized, summated, and preserved for two purposes - (1) rate studies, and (2) system design. These are monthly demand factors and usages.

We also receive how much growth has occurred in each area of the city so that at the end of the summer with our experience in demands in a particular area which we record thru accurate metering of primary points of input plus the customer's meter, we are then able to project with a great deal of accuracy what we can expect by the following year. We then add these estimated new customers in each pressure zone and place this additional data in the computer. In something like twenty minutes, a 20-square mile water distribution system can be operated at the peak hour of the expected load of the following summer. This tells us immediately where, and if, low pressure is going to occur in that system. In about this eight-months period we can then construct most any major element of our master plan which we see will be necessary. This procedure is repeated each year as we get new data and new population growth throughout the city. Thru compilation of this data which is permanent in nature and needs only the addition of certain growth data before re-running each problem, we are able to operate the entire major transmission system of the city on the computer with a minimum amount of effort and expense. As a matter of fact, a major segment of our distribution system involves expenditure now of only some $280.00 for such an analysis. This is a very cheap price to pay for knowing exactly where you are going next year and finding your weak spots before they occur.

In summary on water supply, I cannot emphasize too strongly the necessity for high basic standards of water distribution systems. The minimum size line in any residential area should be six-inch except for cul-de-sacs which can accept a short run of two-inch or four-inch as long as a fire hydrant is within the prescribed 500 feet, fed by a standard main. To the best of your ability, do not sacrifice on these fire underwriter requirements as to valving, sizes of mains, fire flows, and placement of fire hydrants. Don't sacrifice in terms of strength of materials and standards either. You are building a water system for a hundred years if you are wise, and these deserve the best standards available. It is long-run economy with very little additional cost in terms of subdivision development.

I see many metropolitan communities which, as they grow, attempt to retain a complete air of independence and autonomy. I know of no more tragic mistake in the building of a metropolitan area. First and foremost, the central city or major city in such an area must be one blessed with leadership and vision. This requires that the men who lead such a community must be as big as the potential of their area. They are men who must overlook occasional shortsightedness on the part of their smaller neighbors. They must, by giving freely of their ability and resources, dedicate themselves to the growth of the community as a whole rather than just as a central city. It is quite easy to look around the area and see central cities which have withered on the vine because of a self-centered attitude. In many cases their suburban communities, blessed with new blood and good leadership, have even outstripped them.

There have been some remarkable revivals in this area. Some of the good work done in Wayne County near Detroit is an example of it. I don't know whether all of you here have heard the reports on the tremendous effort that it took, however, to bring this area together when it had grown apart. It is quite a story to hear. How much better it is to start out together when you are young and when the initial investment can go for work done right. There is good reason for metropolitan water system planning. I favor this on the basis of a revenue operation, however, and not one which levies taxes. The ad valorem tax is the most inequitable form of water charge. In most cases it simply has no bearing on how the service is used or how much of the service is used. It does have some application in the case of vacant land whose value is potentially increased. In my personal opinion, such a tax should be a decreasing charge paid until the property is developed, after which I can see no reason for any type of ad valorem tax on a property producing water revenue. This applies also to the case of sanitary sewer development.

Actually, sanitary sewer development, by reason of terrain domination in its planning has moved ahead of metropolitan water development. Necessity has forced metropolitan areas to band together in solving this problem. A central city can initiate its own metropolitan water planning without undue risk. Dallas secured its water permits on a pledge to the State Water Commission that it would serve all of the surrounding communities if it were allowed to develop the water resources in the area to the maximum potential as they should be. Dallas has been faithful to this trust and even its major transmission system has been planned in such a manner that the growth of the satellite communities could be met when the time appeared. This has meant that we sometimes invest money in future capacity for a community who is not yet even a customer. This particular approach has the advantage of allowing decisive steps to be taken by a central city without the necessity of consulting a number of governing bodies such as a water authority. It does involve some degree of caution from the standpoint of over-development which cannot be used in the ultimate development of the central city.

Thus, our major transmission system is planned for 1980. All of the supply lines which have been built can ultimately be used entirely in the central city. Some existing satellite communities which are already customers have had capacity provided in these lines for their future growth. This particular approach came about because Dallas advisors in the central city saw that we must grow together as a community, and water, again, was the key to this growth. By this time, however, we had grown too far to back up and form a Metropolitan Water Authority. The ramifications of ownership and bonded indebtedness had outgrown the limits of equity insofar as the burden of debt which would have to be assumed by all member cities.

The fact remains; there was a scarcity of ground water in the area. There had to be a central water plan, so we have chosen to take this route, and could do so without fear that the sources developed would never be needed. This is going to build a better metropolitan area. It does require that the central city be reasonable and equitable in the rates it charges its customer cities. They should pay what the water costs, but the central city should not expect a profit from such sales. This has been one of the big breakdowns in many similar cases where the satellite community's pride and spirit of independence has been stirred by the central city's effort to charge a rate which would return some profit to its citizens. This simply cannot be in the picture if you are going to build together. The small city needs help in all areas, and as such it needs the cheapest water rate which it can obtain if it is to have money for other high type developments inside its city.

We have an example of a water authority which is doing a magnificent job in the northeastern portion of Dallas County and in Collin and Kaufman Counties. This is the North Texas Municipal Water District. Its major customers are the cities of Plano, McKinney, Garland, Mesquite and Forney. Some of the smaller towns of Riley and Rowlett are also member cities. Dallas fostered this development by signing to take 7½ MGD under contract from the North Texas Municipal Water District and guarantee a minimum payment sufficient to support a large percentage of the bonds. This particular system has been in operation since about 1954 and has grown with its communities. It is financed entirely by revenue bonds, and is under very capable guidance by a Board of Directors appointed proportionately from the member cities. It is required by its bond indenture to receive the advice of a competent engineering firm both on construction and operation. There are many similar projects of this type throughout the state which are adequately conceived and executed under capable management and are doing an outstanding job of meeting the water supply development on a metropolitan basis. The biggest of these which you may have read about is the Canadian River Project which will supply many of the towns of north Texas.

In conclusion, let me say that I hope the members of this panel will dedicate themselves to selling the necessity for the highest standards of construction of both water and sanitary sewerage development which we have discussed here today. Above all, we need reasonable and well executed planning programs for these facilities. We need to caution against flamboyant or over-optimistic plans of this nature. These plans must be kept up-to-date with constant review in the light of new experience and growth patterns. We need to encourage high standards of construction which will be lasting and permanent in nature. We must avoid the mistakes of the past where we have built slums. Even low cost housing must be a type which engenders good home keeping and of sufficient durability to be a good investment for those purchasing the homes. How many of us have seen in all of our communities the two-bedroom house which was sold to GI's and we knew it was too small to house a growing family. Many of these areas in our city, which were built outside of the city but have now been annexed, are posing rehabilitation problems to our community. Those of you who are involved in loans for such areas should be very cautious on any development outside of an incorporated area which does not have adequate building codes and inspection. We should insist upon competent engineering assistance and development of municipal staffs through training schools, seminars and programs such as these. By pooling our information, knowledge, and experience, our situation in the future can be vastly improved.

SOLID WASTE PROBLEMS IN METROPOLITAN AREAS
John Wiley

The story of collection and disposal of solid wastes in a community will be satisfactory only if these basic requirements are met: the danger to public health is absent, there is a minimum nuisance to the public, and the sanitary disposal of all refuse materials is effected at minimum expense.

Refuse disposal is a big business in this country. The per capita production varies from 2 to 5 pounds per day for an average of more than half a ton per person per year. And the total amount is continually increasing. Collection and disposal costs in the United States are presently estimated at 1.8 billion dollars per year. Expenditures for solid wastes handling are among the highest items in a great many municipal budgets. Of every $10.00 spent on refuse handling about $8.00 is for collection and $2.00 for disposal.

In most metropolitan areas there are various procedures and operations for storage and handling of solid wastes, in the several governmental units. Frequently in the large community several governmental and private agencies are responsible for regulations and conduct of collection and disposal operations. In the best systems, three steps, storage, collection, and disposal, are coordinated in both planning and operation to best meet the local needs. The economy may indicate the need for another step, transfer, in some of our larger cities.

The proper storage solid wastes on the premises is very important from both health and nuisance standpoints, particularly refuse containing garbage. Garbage collected separately must be stored in water tight containers with tight fitting lids. The can should be of a size to hold the material accumulating between collections and yet not too large for easy handling by the collector. Larger containers may be indicated for multiple family housing and commercial establishments. These may include the types of containers that are unloaded mechanically by the collection vehicle.

The two major storage problems are insects and rodents. Garbage is probably the greatest single source of food for rats in a community. Open or battered containers and an accumulation of filth both inside and outside the container can create fly problems, odors, unsightliness, and other vermin accompanying such conditions. Containers require frequent cleaning and the grounds surrounding need routine policing. While the public education program can correct these conditions, many cities have ordinances to back them up in the securing of sanitation.

But even good containers do not prevent access of flies. Two other important factors help to reduce the fly problem: frequent collection and wrapping of garbage. During the fly breeding season, mixed refuse and garbage should be collected at least twice weekly from residences. In certain areas the number of fly larvae from refuse cans has been found to be far less when collections were twice a week as compared with weekly. Similar results were found when the kitchen garbage was drained and wrapped as opposed to unwrapped garbage. In general the collection of combined refuse from a standard type of container is the most economical. The combined refuse is everything, including the garbage.

Various disposal methods may dictate separate storage of certain constituents of refuse on the premise. With any storage arrangement a system of proper cleaning and maintenance of containers, including replacement, should be established to minimize health and nuisance hazards. Other requirements as to types of storage for ashes, yard wastes, and bulky material need specification. Local conditions will also indicate whether the containers must be set out for collection or not.

The frequency of collection of mixed refuse or the various constituents of refuse stored separately is usually established by the governmental unit. Minimum collection frequency should be weekly. However, definite intervals should be established for each constituent even though some may have different intervals on a seasonal basis as during the fly season and during the colder months. In some localitites, not all portions of the refuse are collected, leaving the householder no alternative but to haul the remainder to a disposal site or to dispose of it on the site by backyard burning or home incinerators. Better public acceptance and support will be provided if solid waste collection includes all types of refuse.

In some cases, a private collector operating under a franchise establishes a monthly fee per family unit for collection of one can full per collection. And if the householder has more than this amount it may not be collected. Whether an additional fee is allowed or not, he should have the privilege of having complete collection if he wants it.

Collection may be by public agency or by franchise contract with a governmental unit. The government may establish collection districts and certain requirements for private collectors that have the equipment and procedures. In most cases where franchises are used, a system of license or permit fees and of collection charges is also established by the governmental unit. The public should be protected against exorbitant charges and unsatisfactory collection services.

The collection vehicles for garbage or other putrescible waste should have water tight bodies and either be completely enclosed or covered enroute. Many collectors now use modern packer type trucks for convenience and economy. Today the refuse is high in paper and plastic content so it is quite bulky and economical pay loads can be obtained only with compaction devices. With the change to the more bulky refuse, the tendency throughout the country is to increase the size of the collection truck from a range of 10 to 16 cubic yards to 20 to 26 cubic yards.

Traffic conditions may dictate night collections in the business district with truck travel on major thoroughfares at other than congested hours. Limitations at the disposal site may encourage staggering of collection hours to avoid excessive unloading delays or refuse accumulation. Considerable study is needed of collection and hauling routes in order to insure adequate pay loads for each truck and minimum haul time to the discharge site. Careful route selection is needed to minimize public complaints. The street and alley layout of the community will determine whether the trucks are loaded in front or in back of the houses. And, if they are loaded in front, whether the collector will set out the cans. When collectors do collect from the rear to the front they usually use a light weight tote box or canvases rather than carrying the containers out and back.

Commercial and manufacturing refuse, demolition debris, agricultural solid wastes, and other special classes of solid wastes are often not the responsibility of the regular collection agencies, but they should be considered in the planning.

At a transfer station, the upper ramp is where the collection trucks come and discharge directly into large capacity transfer vehicles. In other words, the normal collection vehicle may have a pay load of 3 to 5 tons. If that goes a long distance to the discharge site with 2 or 3 men aboard, it is not a very economical system. A transfer station may be indicated. Generally the dividing line may be a 10 or 15 mile one way haul. Transfer trailers vary from 50 to 80 cubic yards and are used sometimes singly, sometimes in trains.

There are three methods of disposal that will handle combined solid wastes: sanitary landfill, incineration, and composting. The garbage can be ground to go in the sewers to the sewage treatment plants or the garbage may be fed to hogs. But garbage is less than 10% of the volume of the refuse and separate disposal doesn't materially reduce the overall refuse disposal cost.

The material in a sanitary landfill is placed and compacted by tractors and then covered daily with the final cover being at least two feet of compacted earth. The face of the dump is kept very small, it is not a spread out type of operation. The sanitary fill we hope will someday replace the open dump, the burning dump. You can all recall what open dumps look like and they are all too frequent in this country. The sanitary fill area uses up a quite bit of land, approximately 1 acre per ten thousand people per year for a 6 to 8 foot depth of fill. In some canyons or gravel pits they may go as high as 160 feet of fill in which case the land will last longer. There is always the problem of getting enough land for a disposal site.

In composting, there are not very many plants in the country, eight in all, with some of them operated on an intermittent basis, and a total of six different systems in use. Many of them are on a trial basis, trying to get the bugs out of the system. Composting will not handle all the waste, about 25% or so having to be sorted out and disposed otherwise, probably on a landfill.

The composting is aerobic decomposition of organic wastes to a relatively stable end product. The principal products of decomposition are carbon dioxide, water, and a humus-like material. One of the big troubles with composting right now is the uncertain value of the compost as applied to various agricultural uses. Up till now every plant in this country has been built by private enterprise for making a profit, rather than designed as a waste disposal system by a city government.

One of the types of plant consists of a big tank which looks like a clarifier with stirring devices which extend down into the compost to keep it churned up. At San Fernando the material is composted in six cells. It goes through three stories, is reground, and then goes through three more stories. The total time is six days. One plant has a capacity of about 175 tons per day, the Dano Process plant at Phoenix, a new one which was just completed the first of October 1962. It has four biostabilizers. I don't know what this particular one cost, probably $4,000 to $6,000 per ton of capacity which is a little bit in excess of the cost of incineration. Composting will require skilled operations and while there are 4 or 5 different systems of composting that have been adequately tested in this country or abroad, there should be sound mechanical designing and pilot plant testing before any new process is attempted on a large scale. Any plan including composting as a method of disposal should include careful study of materials handling, processing techniques, and economics, and should be submitted to the state health and planning agency involved. Because of a number of compost plant failures in this country, the approach should be one of limited test and demonstration plants rather than the construction of many or large processing plants.

Incineration is a method of disposal; it is a very sanitary method and often times the most desirable method for certain types of waste. One trouble, I think, is that in planning we dismiss incineration from the cost standpoint without actually going into it enough to see whether it would be economical. For example hospital waste, dead animals, oil wastes, tires, and things like that are quite difficult to dispose of by other means than incineration. There are a number of types of high temperature incinerators which will destroy all organic materials and would be suitable for installation and meet air pollution control requirements. The latter, of course, will add to the cost where you have a critical area such as Los Angeles with inversion and fog conditions. Incineration will probably leave 25% of the refuse to be disposed otherwise.

Perhaps we ought to mention back yard burners. In some areas these have been outlawed and when they are, the amount of refuse to be collected usually doubles. So consideration must be given to collection and disposal if any plans have been made to do away with backyard burning.

The actual site requirements and detailed plan preparation for various methods of disposal should be submitted, whether incineration, composting, or landfill, to the health and planning agencies for approval. Efficiency, economy, and proper safe-guarding of the environment will undoubtedly be achieved only by united planning and implementation. Both basic data and projected information must be obtained for each jurisdiction and all the many factors considered before the long range area wide refuse disposal plant can be constructed. The best preparation appears to include the environmental health plan, followed by more detailed study of the specific waste production and disposal problem.

One final comment is that in spite of being such a large industry the solid waste disposal industry has spent very little on research. It is an expensive thing and the research needs are tremendous. We hope to encourage additional studies, not only of methods of disposal such as wet combustion and other newer methods of disposal, but also in the storage and collection where very little has been done other than to increase the size of the collection trucks.

HOUSING PROBLEMS IN METROPOLITAN AREAS
David A. Grossman

I would like to cite a couple of statistics from the Censuses of 1950 and 1960. In 1950, converting census data into a general substandard criteria, some 37% of all housing in this country was substandard. That is, nearly 4 in every 10 dwellings was substandard. By 1960, there had been a drastic improvement, partly as a result of changes in census criteria but largely as a result of some major accomplishments, both in increasing the total size of the housing stock and in actually reducing the number of substandard dwelling units. In 1960, the Census indicated that only about 20% of all housing in the country was substandard, or one dwelling in five. Even after this improvement, however, in terms of numbers, there were in 1960 some 11,000,000 substandard dwelling units needing one or another form of major improvement before they could be called decent, safe, and sanitary. This is an enormous problem; it is one which exists throughout the nation and in every urban area.

In addition to the specific defects that exist in our housing stock that are characterized in this census measurement, there are many environmental problems, although I am using the word "environmental" in a slightly different sense, I think, than the previous speakers have. I am talking about the environment for housing in the urban area. From the environmental engineering point of view presented earlier, housing is part of the environment for people.

There are many factors which add to the basic problem of defective housing. Problems of traffic, poorly laid out neighborhoods, the lack of many community facilities and many public utilities in portions of our urban environment. Mixed land uses, that is combinations of housing, industry, and stores all mixed mumbo-jumbo together without any logical separations and various kinds of pollutions create environmental problems for housing that add to the defects of housing itself and give us problems of a major scope.

A significant advance in the attack on this kind of problem was the passage in 1949 of the United States Housing Act, which established for the first time a clear national goal in the area of housing. The goal is the achievement of a decent dwelling in a sound environment for every American family. This is a goal toward which we've made some progress from 1950 to 1960, partly as a result of Federal, state, and local action and partly as a result of improvements in the private economy. We reduced from nearly 40% to 20% the number of dwelling units classed as substandard. But we are still a long way from achieving the goal set forth in the Housing Act of 1949. And along the way, the goal has been somewhat revised, expanded, and broadened, and the Federal programs developed to achieve this goal have themselves been revised and expanded.

One such expansion was made in the Housing Act of 1954, which expanded the 1949 concept of urban redevelopment or slum clearance to a broader concept of urban renewal involving the use of a wider variety of measures to achieve the goal of a decent dwelling and a sound environment.

In 1959, another Housing Act introduced yet another expansion of the renewal concept. This expansion occurred in the introduction of a new Federal program. Basically a research program, it is designed to enable communities to utilize the tools of slum clearance and urban renewal more effectively in their efforts to achieve the national housing goal. This is the program which I would like to talk about today, The Community Renewal Program. And for convenience and to distinguish it from the Urban Renewal Program which is the broader term, I'd like to use the initials, which I think will be familiar at least to the urban planners in the audience -- CRP.

What is the CRP? In simplest terms, it is a program of Federal financial assistance to localities to help them carry out certain kinds of research. Assistance is given on a two thirds Federal, one third local basis.

Community Renewal Programs can perhaps be summarized in terms of five characteristics, and I am inspired by a meeting I participated in last night to compare these characteristics to the game of poker. I offer you a full house, three of a kind and a pair, three characteristics with initials of C and two with A.

First, a CRP should be community-wide. We are no longer talking about a specific project area but about an entire jurisdiction covered by the local governing body. Secondly, it should be comprehensive in the same sense that Paul Oppermann was referring to comprehensive planning this morning. It should include a wide variety of approaches to the problems of housing in the Urban environment and be comprehensive in the sense of not being devoted or restricted to any specific program of improvement. Rather, it is intended to encompass all of the kinds of effort that can be made for urban improvement. Third, it is continuing in the sense that this is not a one-shot program designed to be done as a package plan which you put on the shelf. This is an ideal that has been aimed at by many programs and achieved by relatively few: the continuing assessment and reassessment of community needs; the continuing re-evaluation of these needs; and the continual re-establishment of an action program to meet these needs.

That leads into the first of the two A's. This is an action-oriented program. Research, yes, but research with a very definite focus on action. Research that is designed to come up with a specific program of local activities to be accomplished within a relatively short term, 5, 10, or perhaps 15 years. In the CRP, we are talking only in terms of what can realistically be foreseen and achieved by an existing local governing agency. The last of the Community Renewal Program A's is that the CRP should be adapted to local needs. We are deliberately making an effort not to set down any rigid guide lines for the Community Renewal Program. We want to leave as much scope as possible to local ingenuity and local ideas to allow for adaptation of the CRP to local problems.

At this point I think it would be appropriate to read to you a quotation from a speech made by Urban Renewal Commissioner William Slayton at El Paso, Texas, in May, 1961 when the Community Renewal Program was just getting under way. Mr. Slayton said,

> "The basic purpose or role of the Community Renewal Program is to expand the scope of local renewal action from a project basis to the total community scale of needs. It provides a basis for local strategy in carrying out concurrently the full range of urban renewal activities. It...presents the local officials with an overall, itemized, and detailed picture of the community. It presents the potentials and conditions necessary for renewal... Then, a continuing action program can be established and maintained...whatever may be necessary to marshall, improve, and apply local resources to meet total needs."

What are the general contents of a program that will achieve this objective? I would like to list what we think of as the basic contents of the Community Renewal Program. I think in these contents you will begin to see some of the ways in which urban planning, urban renewal, and environmental engineering can work together, because the content of the CRP draws from all three of these fields and from some others as well.

There are five basic requirements for a Community Renewal Program. First is an assessment of the need of the community for renewal action. We are principally talking about established communities which may be growing but where annual growth is relatively small compared to the size of the community, rather than growth areas on the metropolitan fringes. The identification of the need for urban renewal should cover the locations of blighted housing, deteriorated housing, and blighting environmental factors. Identification of these gives a measure of the scope of the renewal problem. This first phase of the CRP should include a tentative assessment of the type of urban renewal treatment that is appropriate for each area of the community. In the crudest terms you can say this part is an area that is so rotted, so deteriorated, that nothing short of public clearance is meaningful. This other part is in the middle ground area where sometimes selective clearance action and rehabilitation may be the most feasible treatment. This part may be an area where the primary need is improvement of community facilities and utilities and other kinds of action short of clearance.

The second element of the CRP is an appraisal of the economic basis for renewal. Without some very realistic understanding of what the economic pressures are going to be and what the demand is going to be for urban land and urban buildings, a renewal program will founder on the hard facts of the private economy of the American city. The CRP must be based on the changing market. This involves an analysis of the prospective changes in the community, changes that have taken place, changes that are taking place, and that will take place. And when we say community here we had better expand the scope of activitiy to include the metropolitan area. Because virtually every individual municipality exists within an economic framework that is at the very least a metropolitan area. For many communities there is even a wider competitive horizon involved. The role of a community in the national market is certainly an element you've got to consider in terms of appraising future demands. This appraisal of the economic basis for renewal should end up with estimates and forecasts of the demand for various kinds of residential and non-residential land uses. Land needs must also be related to forecasts of the intensity and character of the various types of activities taking place in the locality.

Third, after the needs assessment and appraisal of the economic basis, comes what I think is the most significant element of the Community Renewal Program: establishment of agreed-upon goals for community renewal. Every community has all sorts of general goals, such as more employment, better designed areas, elimination of substandard housing. These broad goals are all highly desirable and each is wanted by every one of our communities. But in the real world, there has to be some kind of ranking goals, some manner of making them more specific so that they can be used as a guide for renewal programs. These are not the goals of the planning agency, the renewal authorities, or any other specific agency. These have got to be the goals of the entire community. And these goals are decided upon in the political arena.

Fourth, and I am not talking in a time sense because each of these elements has got to take place concurrently, is the measurement of the resources that will be needed to carry out the renewal program. There is usually a gap between what you are going to need and what you've got. The gap of course is the distance between you and accomplishment of your program. Resources considered should include public and private resources, community facilities, and related services. They should include identification of ways and means to achieve genuine citizen participation in the renewal process. This is an invaluable resource. Without the resource of citizen participation, we've come to recognize that urban renewal is really not going any place at all in many communities.

Relocation resources is a fundamental element in any successful renewal program. The study of relocation resources should include knowledge of the amount, type, and character of relocation involved in one or another renewal action. If an assessment shows you haven't got resources available for the families who will be relocated, the renewal program isn't going anywhere. Incidentally this applies to non-residential activities as well as to families.

Improvement of the administrative organization for carrying out renewal action is another resource item that covers a wide variety of municipal activities. To what extent are they presently equal to the task of renewal? What kinds of action have got to be taken by the community, by the state, and quite conceivably by the Federal Government as well, to create the kind of administrative organization and legal tools that will be appropriate for carrying out a renewal program?

And last in this particular list, we must know the financial resources available in relation to projected renewal costs. A program that can't be supported by the community is not a renewal program which is going to be carried out.

The final element in the CRP is the program for action itself. It is important to recognize that this program is not necessarily going to equal the first element, appraisal of renewal needs. It would be very neat and nice if within a 5 or 10 year period or even in a 20 year period, a community could establish a realistic program that would eliminate all of its blighted housing and all of its environmental problems. But to be realistic, we are not going to achieve that. Therefore, you have to have a program for action, based upon goals and a priority system that is within the realm of possibility, or maybe just a shade beyond that realm to provide some element of challenge. You can't have a program that says that a community of 70,000 people that has never had a single renewal project, that doesn't have any public housing, that has a major blight problem and that has all kinds of defects in its community facilities and utilities, can solve all of these problems in 10 years. This is not a program that is going to have any meaning to people. A program which starts out with a rather modest approach, which says we gather experience as we go along and after awhile we hope to get the benefit of some acceleration based on our earlier experiences, I think, is the kind of program that we ought to be talking about in a Community Renewal Program.

On participation in a Community Renewal Program, the Congress set down an excellent guideline. It is required that, at a minimum, every CRP must touch base with the local governing body, at the beginning and at the end of the program. At the beginning there must be approval of the application for Federal assistance by the local governing body. The local governing body can assign whatever city agency it sees fit to be the action agency for carrying out the program. But it must make this decision. At the end of the Community Renewal Program there is another finding required by the local governing body. This is a finding that the program is in conformity with the general plan of the locality, that the community is not saying one thing in its general plan and another thing in its Community Renewal Program.

Thus far in the 80 or so Community Renewal Programs in operation in this country, there is a wide variety of municipal agencies involved as the principal or as auxiliary agencies in carrying out the CRP. Planning agencies, renewal agencies, health departments, budget departments, mayor's offices, urban renewal coordinators, every one of these is involved in various communities. The task of relating these agencies, relating their programs to one another, is a task which is a challenging and difficult one indeed. There is, incidentally, a role to be played by metropolitan agencies and by semi-public and private activities as well. In several instances metropolitan agencies have undertaken major parts of the planning work or the economic analyses for a Community Renewal Program.

In the earliest years of the urban renewal program, the goal was slum clearance. The primary concentration was on eliminating blighted houses. The goal seemed clear, the methods seemed clearer, but neither one turned out to be quite so clear. We've had in a number of instances renewal projects designed to eliminate blighted housing. They were successful in this objective, but a corollary objective was not met: the economic re-use of the urban community.

As a result there was a second phase in the urban renewal program. That has been identified as the phase of opportunity projects. Where within the urban area there were problem areas where the basic need was for the assembly of land, provision of the necessary facilities and services, and writing down the cost of the land so it could be economically used. After this action had taken place it was like the bursting of a dam. Private investment became possible and the re-use and reconstruction of the area proceeded quite rapidly. Many of our most successful urban renewal projects were of precisely this type. We have quite impressive results.

At the same time this, too, falls short of meeting total community needs. In all areas there is not equal opportunity for re-use, there is not equal opportunity to get back high tax returns from municipal investments. There is a serious and real need for municipal action in these areas and it is our hope that through use of the technique of the Community Renewal Program, localities will be able to relate various goals, objectives, possibilities, and needs to one another and come up with a balanced program of urban renewal: part slum clearance, part opportunity project, part many other things, a continuing set of municipal activities for community renewal and renovation. I would like to close by citing a statement by President Kennedy relating directly to this concept of continuing community renewal. The President said, "Urban renewal programs to date have been too narrow to cope effectively with the basic problems facing older cities. We must reshape our cities into effective nerve centers for metropolitan areas. Our urban renewal efforts must be essentially re-oriented from slum clearance and slum prevention into positive programs for economic and social regeneration." In this process I would hope the Community Renewal Program will be of assistance both to planners and to environmental engineers.

RADIOLOGICAL HEALTH IN URBAN PLANNING

Earnest F. Gloyna

Should there be planning in radiological health? And if so, should it be urban planning and, if this is the case, who should shoulder the responsibility? Perhaps some of these questions can be answered. As an introduction, let's say that man desires to live in a healthful environment. Of course this implies that the water we use, the air we breathe, and the food we consume create no bodily hazards. But man frequently eats too much, consumes known toxic materials at times, stays in rooms that are too warm and sometimes smoke-filled. Similarly, man has had previous experience in living with ionizing radiation. This ionizing radiation can be caused by natural background radiation, naturally-occurring radioactive materials, man-made radioactive materials, and such electro-magnetic emissions as X-rays. Why then are we concerned with radio-logical health, if we have had this experience of living in a contaminated environment? The problem evolves around several factors.

Man wishes to use nuclear energy for the development of available resources; and he also fears that nuclear energy, through its by-products, might destroy him or his progeny. It is to these two particular problems that we should address ourselves.

We need to evaluate realistically the radiological consequences of a nuclear attack, an accident with attendant fuel element rupture in a power plant, nuclear test fallout, and other sources of ionizing radiation. Because of this growing concern about long range effects and the need to use radioactive materials, we are presented with a paradox. There is a great desire to use these materials, but there are fears that accompany their use.

From a planning point of view, let us make one point very clear: radiological health planning, whether we are talking about hospital operations, metropolitan complexes, or nuclear power plant systems, may be somewhat controversial. There are those, both the technically qualified and the average man-on-the-street, who say community defense is not worthwhile because the more security one feels the more willing one is to risk the holocaust. Also, there are those who for well-founded reasons would have society restrict the use of all ionizing radiation sources. Then there are others who would exploit nuclear power to the point of taking grave humanitarian risks. To the planning analyst, who must consider radiological problems, there is an enormous contemplative weight of the subject and a seemingly overwhelming demand

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for unrealistic accuracy. Those planners who neglect problems involving radiological health are be-damned and those who passionately follow their convictions are accused of sensationalism. Unfortunately, all of this confusion has led planners, engineers, and scientists to develop two sets of definitions meaning the same thing.

As an example of this problem in definition, at one time reports describing the hazards associated with a nuclear facility were called "hazard reports." However, public feeling and misinterpretation of the meaning of the word "hazard" has resulted in these reports now being termed "maximum credible accident reports." As another example, radionuclides in water, milk, and air were at one time generally referred to in terms of "maximum permissible concentrations." These values are neither maximum nor permissible, so we now prefer to refer to a set of numbers as "radiation guides."

From the engineer's point-of-view, responsible and prudent planning can and should act on the basis that protective measures constitute a sound form of insurance. It is necessary for a planner or an engineer to use a valuable resource such as ionizing radiation. Similarly, for a planner or an engineer not to use this valuable resource libels both the intelligence and morals of our society. Therefore, communities have a special responsibility in planning for increased uses of ionizing radiation sources, nuclear power plants, radioactive waste disposal, etc. Just as business and industry have a responsibility to employees and the community, planners should have an equal responsibility to consider the usefulness of all the resources that can benefit a community system.

Each of the various aspects of radiological health planning should be considered from a positive point-of-view.

Nuclear Attack and Survival

Logic and human shortcomings suggest that, however remote, nuclear attack is possible. Full-fledged war may not be likely, yet because of this possibility, planners should examine the end results of such a conflict. An urban plan for environmental health which fails to consider results of a full-scale attack, employing modern thermo-nuclear weapons, is sadly lacking in detail. Just what, then, is required for planning of this type -- planning for survival? Attack estimates require assumptions of total size of the attack, size of individual weapons, type of burst, and most important from a planner's point-of-view, the nature of the target. The latter is the most difficult to foresee. Consequences of an attack are, of course, thermal radiation, shock pressure, local fallout, global fallout, and possible radiation sickness. There are risks to be taken by each community, and an effective plan must be coordinated in depth and breadth.

Civil Defense authorities can be of help to a community but should not be counted on to solve all of the planner's problems. Urban planning for a major disaster must be firm and not ebb and flow with the tide of each new international situation. Long-range survival of a community may very well depend on some plan developed yesterday. Such a plan would include water development, traffic patterns, routing of raw resources, land development, etc. In short, the road to survival and restoration of production after disaster will depend on how well the regional planning efforts have been integrated for the entire community. Unlike engineers of the past who designed the walled cities of old, the modern planners must now incorporate tactics employing an integrated regional effort.

Nuclear Reactors

The community or region that wishes to bring into its scope a new form of power will probably consider nuclear reactors. Obviously, atomic energy is a source of power that must be considered in future planning, for nuclear reactors are here to stay. Therefore, it is well to confront a few problems.

According to the Atomic Energy Commission and those who have written some hazard reports, one of the chief problems is that of assessing property damage resulting from a "worst credible accident." Whether arising from a major malfunction or from sabotage, the estimates of damages from such an accident would run into billions of dollars and fatalities could number into the thousands. Obviously, the old proven historical practice of risk-taking by the insurance industry is not adequate to handle such a major catastrophe.

In 1957, Congress enacted legislation under which the public liability for a disaster of this kind was transferred to the taxpayers. To many, this action has appeared to disrupt the traditional system of professional discipline and responsibility.

In contrast to the historical development of steam and hydroelectric plants of the past where there was a step-by-step development, atomic power development has taken place in reverse sequence.* In all probability, it is currently not feasible to identify all the factors of economics and costs which by tradition are the yardsticks of measuring power plant costs. This has inevitably led to a considerable degree of confusion. However, in all this controversy between government monopoly, private enterprise, professional responsibility, regulatory advice, pacifists, and over-zealous exploiters, there is real hope that much can be accomplished through appropriate planning.

*Ackerman, A. J., "Atomic Power Program is Undermining Responsibility," American Engineer, 33, 31 (January, 1963).

Urban planning with respect to site selection can be undertaken to minimize the potential problems. Poor site selection in the nuclear business is similar to locating a high-cost housing development under the stacks of a blast furnace. Competent consultants can help planners evaluate the cost benefits of nuclear power and the hazards that may be involved.

Nuclear Fallout

The general topic of radiation must include mention of nuclear fallout. Actually, there is little that can be done about nuclear fallout from an urban planning point of view. Global fallout consists of fission products that were formed by air or ground explosions. The material from these ground bursts initially vaporizes and then condenses into extremely fine particles. Much of the radioactive material decays into harmless matter, excepting such radionuclides as strontium-90 and cesium-137, which remain radioactive for long periods of time. Extreme increases in radiation levels are considered to produce genetic effects, bone cancer, etc. At present, the true impact of long-range effects is widely debated.

In recognition of the potential hazard, the U.S. Public Health Service, Atomic Energy Commission, and others, in cooperation with the state departments of health, operate various surveillance networks. The Radiation Surveillance Network (RSN), which began operation in 1956 had increased in 1961 to 72 stations* which analyze airborne particulates and precipitation. This type analysis is probably the earliest and most sensitive indicator of increases of fission products in the environment. The Pasteurized Milk Network, operated by the Public Health Service and the state health departments, issues regular monthly reports providing data on iodine-131, strontium-89, and strontium-90 found in one liter of milk at various sampling stations. In addition, the U. S. Naval Research Laboratory operates the 80th Meridian (West) Sampling Program.

Radiation Protection Guides

To help evaluate the relative effects of fallout on the human system, the Federal Radiation Council Guides have been adopted by the Federal Radiation Council. These have been developed very flexibly, but provide acceptable health-risk values.

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*Radiological Health Data, U. S. Public Health Service, Division of Radiological Health, Washington 25, D. C., 3, 425 (November, 1962).

These Guides are compatible with the orderly development of the nuclear industry in the United States.

Iodine 131 --100 micromicrocuries per day, or 12-month total of 36,500 micromicrocuries.**

Strontium 90 --200 micromicrocuries per day, or 12-month total of 73,000 micromicrocuries.

Strontium 89 --2,000 micromicrocuries per day, or 12-month total of 730,000 micromicrocuries.

In a statement dated September 17, 1962, on their applicability to nuclear test fallout the Council emphasized that these guidelines were not to be interpreted to mean that protective health measures must be taken when upper levels of Range II(represented by the values given above) are exceeded. This was stated as follows:

> The Council believes, based on competent scientific advice, that any possible health risk which may be associated with exposures even many times above the guide levels would not result in a detectable increase in the incidence of disease.
>
> The Radiation Protection Guides are not a dividing line between safety and danger in actual radiation situations nor are they alone intended to set a limit at which protective action should be taken. As applied to fallout, guides can be used as an indication of when there is a need to consider whether any protective action should be taken under all the relevant circumstances.
>
> The Federal Radiation Council recognizes the need for additional guidance related to fallout. The Council has directed appropriate Federal agencies to keep it continuously advised on the fallout situation, particularly with respect to local situations requiring evaluation. The Council, acting through its member agencies, will, when requested, provide consultation and technical assistance in the event that there is concern about fallout levels in any part of the country.

Radioisotopes and Other Ionizing Sources

Surprisingly enough, the X-ray machine is still the most

**The guide for iodine 131 is set for the most susceptible group--infants and very young children. For adults the iodine 131 guide could be tenfold larger, or 365,000 micromicrocuries per year.

significant contributor of ionizing radiation to the populace. The public's greatest fear arises from radioisotopes, but there are over 200,000 X-ray machines in this country. To cope with these radiological health problems, the Public Health Service, through its Radiological Health Division, has awarded funds to universities for training personnel in X-ray safety, and to state departments of health for monitoring and local control. Recently, 29 states and Puerto Rico were awarded 1.5 million dollars on a matching funds basis under a new formula grant.

> The program is designed to assist the states to develop their own capabilities in the field of radiological health, with particular emphasis being given to monitoring X-ray units and to increased State surveillance of environmental radiation, including fallout.*

Allotments to the states are computed on the basis of population, financial need, and extent of the problem. Texas received $64,400 under the fiscal year 1963 allotments.

Texas leadership in training of radiological health personnel and demonstrated competence on the State level has been noted, and now the State Department of Health will shoulder the responsibility of issuing licenses and inspecting all radioactive materials, including radium, as of March 1 this year. Transfer of this authority from the Atomic Energy Commission is putting control at the lowest practicable level.

Local Planning

Frequently, the question arises as to whether there should be planning on a local scale. However, it would seem that in dealing with the radiological problem, this should be a very large-scale operation. Also, local planning responsibilities with regard to radiological health are not complete until every major community facility has been incorporated into what might be called a Master Effect and Action Plan or, to borrow a phrase from the Army, SOP's, Standard Operating Procedure. This would include resources, housing developments, shopping centers, traffic patterns, water treatment systems, food supplies, power plants, sewerage facilities, schools, local government, fallout shelters, etc. More thought should be directed toward improving service units so that they are acceptable to the community and to the development of the resource, and so they can continue to serve the community during periods of stress.

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*Dr. L. L. Terry, Surgeon General, U. S. Public Health Service, News Release (December 20, 1962).

Numerous instances might be cited. For example, in the water industry, there are relatively few cities which have a truly well-developed plan for handling the problems which relate to radiological health. Yet there is no reason why a modern water treatment plant cannot serve as a temporary home, shelter, and perhaps even a point of operation for the plant operator and his family. It would be advisable for each water utility periodically to practice decontamination using non-radioactive tracers, etc.

Conclusion

The radiological aspects of modern planning cannot be overlooked, although nuclear power is still in its infancy. Planners do have a responsibility in radiological health. Therefore, why not look at future land developments now? Look at the power requirements now and think about where a reactor should be built. In this frame, then, Admiral Hyman Rickover's statement on responsibility deserves to be etched into the mind of every planner who undertakes to develop a long-range program for a major industrial community.

> Responsibility is a unique concept: It can only reside and inhere in a single individual. You may share it with others but your portion is not diminished. You may delegate it, but it is still with you. You may disclaim it, but you cannot divest yourself of it. Even if you do not recognize it or admit its presence, you cannot escape it. If responsibility is rightfully yours, no evasion, or ignorance, or passing the blame can shift the burden to someone else. Unless you can point your finger at the man who is responsible when something goes wrong, then you have never had anyone really responsible.*

There is a testing ground in radiological health. It is not necessary to wait until a slum condition or a blight condition exists, as is done in the housing field. This long-range planning in radiological health should be considered today.

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*Testimony on "Radiation Safety and Regulation," Joint Committee on Atomic Energy, U. S. Congress, June 15, 1961.

CONTROL OF ATMOSPHERIC CONTAMINANTS
Charles R. Barden

It is indeed a pleasure to meet with this group and to participate in your program, especially at this time when air pollution is such a popular topic even among lay groups. Although my present responsibilities in the Texas State Department of Health are concerned primarily with programs of Air Pollution Control, Industrial Hygiene, and Radiation Control, I have for many years been interested in municipal affairs and have spent considerable time in this area in graduate studies, as well as in various public health activities associated with urban planning and development. I learned several years ago that there are at least four cardinal principles which should be followed in the administration of any municipal government, namely, (1) the separation of policy making from administration, (2) the fixation of responsibilities in municipal administration, (3) a provision for the employment of trained and qualified personnel, and (4) a comparatively simple city governmental organization. I think that these principles still apply for the most part; however, I am sure you will all agree that it is somewhat difficult today to provide a simple form of government at any level. Today's urban problems are complex and involved, and it is not always easy to explain to the citizenry in simple terms the many facets of urban planning, especially in the field of environmental health and more particularly, Air Pollution Control.

The problems of maintaining clean air for breathing and for all of its other uses is becoming just as complex a problem as that of maintaining an ample, safe water supply. I think we are especially fortunate in the discussion of my topic, "Control of Atmospheric Contaminants", at this time, because of the recent National Conference on Air Pollution, which was held in Washington, D.C., December 10, 11, and 12, 1962. Except for a few selected opinions of my own, I will attempt to give you some of the observations of this conference as related to the effects of air pollution on urban planning and development.

This conference was unique in one respect, in that a majority of the participants agreed that an air pollution problem does exist in the United States, and that sufficient evidence is available from both the health and economic standpoints to warrant immediate action by both government and industry. A report of one conference panel charged with examining the health effects of air pollution stated that,

> "It would be a mistake to leave this conference with the impression that there is not sufficient

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> evidence for action now. The evidence that Air Pollution contributes to chronic, respiratory diseases is overwhelming",

and elsewhere in this report, discussing the additive effects of smoking and air pollution, a statement was made that,

> "It matters little to the lung which particular substance disturbs its lining."

In support of this conference, the American Medical Association dispatched a telegram to the chairman which said in part,

> "Believing that air pollution can and should be controlled, the American Medical Association endorses the concept of local, state and Federal enterprise. Local, state and industrial groups should participate to the utmost of their capacity. The Federal Government should engage in responsible leadership through the Public Health Service, research and discovery and enforcement in interstate or inter-jurisdictional difficulties in the manner of the successfully implemented Water Pollution Act."

The acute lethal potential of air pollution has been dramatically demonstrated in Donora, Pennsylvania, where 20 persons died, and half of the population were made ill. Other effects of air pollution range from irritation of the eyes, nose, and throat to more subtle and long range physiological changes which undoubtedly contribute to chronic illness or premature death.

In addition to its effects on health, air pollution places a heavy economic burden on our country. It causes extensive damage through its effects on animal and plant life, through corrosion and soiling of materials and structures, through the depreciation of property values, by interference with transportation, and, certainly, it has an adverse effect on urban development. The latest figures suggest that air pollution may be costing the nation in excess of seven billion dollars each year. In support of evidence that air pollution is now a nation wide problem is the fact that this scourge is not peculiar to a few unfortunate locations. On the other hand, current estimates indicate that all urban developments of fifty thousand and over have some kind of air pollution problem. Eighty-eight per cent of our urban population and well over half of our total population live in these air polluted areas. On the basis of 1950 census figures, these figures indicate that about eighty-four million are exposed to air pollution. Air is a natural resource, essential to man's very existence, necessary for plants and animals, and is required by many of man's community, domestic, and industrial activities. Our dependence on this vital resource requires that it be protected from contamination, and it is indeed another responsibility of city planners to place this problem in a high priority category in guiding the future growth and development of our municipalities.

At this point and as I have done before in similar environmental health seminars, I would like to point out some political and sociological developments which are creating new and unsolved problems in this area of environmental health engineering. The growth of populations in this state has developed a pattern in which industrialization is making city dwellers out of most Texans. The accompanying problems associated with this growth and development, of course, are obvious to all of us and if local jurisdictions were legally and technically in a position to solve these problems, then fewer requirements would be placed on State government. The steady increase of municipal populations, however, so far, has run far ahead of corresponding municipal authority.

A review of local government in Texas reveals a conglomeration of governmental units, closely grouped, and in some cases overlapping. There has not been any real effort made to reduce the number of local governmental units with the possible exception of our independent and common school districts which have definitely shown a decline in numbers during the past 10 years. Our state, in a certain sense, has the constitutional responsibility for the future development of local government which is effective and which provides for extensive citizen participation in the affairs of government. Contrary to this political philosophy, metropolitan areas are not being organized and planned as governmental units, but on the other hand, develop and exist for economical and sociological reasons.

I am sure all of us will agree that it is nearly an impossible task for these separate political jurisdictions to enact and carry on independent air pollution control programs. The only practical answer to this problem, it seems to me, is a unified effort by industry and all citizens in the affected urban areas. We in the State Health Department intend to encourage groups, communities, associations, municipalities, compacts, and industries who may need help in planning an effective local air pollution control program. The great diversity of local needs and other factors influencing air pollution require action at the local level, supported by the State. This support should include, in addition to program and technical assistance, research and training assistance from our State University and colleges. I am convinced that regional planning should be made on the basis of airsheds just as we have done in the past in the development of watersheds.

Pursuing this matter a little further, it is recognizable that our American federal system was founded on the general principle that the national government should act only when the states are not equipped to perform. Our sociological and economical development has possibly influenced somewhat the application of this principle, but its validity, as far as I am concerned, has not been effected. We must keep in mind, however, that state lines do not stop an air pollution cloud, and that interstate problems already exist.

We must realize now that we are facing a tremendous urban population growth, and it is essential that planning, programing, and research be accelerated by our state and local governments to meet the growing problems of air pollution in the future.

Air pollution in a region is a function of aerial activities and weather conditions. Knowledge of such factors as wind directions and speeds; wind flow patterns as affected by large land features; amount and times of precipitation; and daily and seasonal amounts of sunshine, permit the over-lay of airsheds or meteorological-topographical districts on maps already recording land use, population densities, traffic flows, and other data. For each such district the over-all natural dilution capacity of air may be estimated, and studied in relation to indications of the amount and kind of contaminants likely to be produced there or received from external sources.

Local variations within the airshed are also significant. These will depend on the location of pollutant sources, surface roughnesses retarding air movement by friction, and such temperature and topographical differentials as create local flow patterns varying considerably from prevailing wind directions. (Sea-land breezes and mountain-valley winds are examples of such local winds.) But unfavorable topography is not a necessary factor in pollution build-up. Extreme pollution concentration may develop in a city on a plain provided the source strength is great enough to offset a low diffusion rate. There may be enough surface roughness in a city situated on a flat open area to make it a better sink than the surrounding country-side for stagnant pools of air.

The natural dilution capacity of an area is relatively fixed by meteorological and topographical factors, whereas populations and sources of air pollution may be assumed to be constantly growing over time. Consequently, most settled areas will in time come to require regulation of the emissions of air contaminants which, in concentration, can produce chronic nuisance, health hazards, and extensive damage to vegetation, animals, and property.

The usefulness of the airshed concept for planning to prevent and control air pollution will hinge on the ability to determine dilution capacities and air pollution levels with objectivity.

Through continuously operating systems of surface wind-observing stations, utilizing those of air pollution control districts, industries, armed forces, and the U. S. Weather Bureau, it is now possible to draw reasonable conclusions as to the frequency of weather conditions within an airshed which would be conducive to high air pollution levels. With the addition of knowledge of local flows and their variation in time, it is possible to develop hourly maps which show existing air flow patterns over specific areas.

In some instances local air pollution control districts have established a grid system on which all locations may be identified by x and y coordinates. Such a system has enabled a district to show graphically not only point sources of pollution and travel of pollution clouds, but also has provided a means for these districts to determine whether pollution is being produced by traffic, industry, homes, or any other components of the urban complex. With the information and methods available it is now possible to calculate regional air dilution capacities and to use the airshed concept in land use planning.

Fortunately, except for one area, we, in Texas, are blessed with adequate prevailing winds and good meterological conditions so that emissions and pollutants from point sources are dispersed before adverse air pollution conditions are produced. In some areas, however, temperature inversions with low wind movements do occur, especially at night, and as a result, complaints are usually registered with us. We have noted in the past few years that in large metropolitan areas, a very definite increase in pollution in the form of a comparatively heavy haze is occurring more frequently.

One of the principal industries in this state responsible for air pollution complaints is the cotton gin industry. The complaints have been due for the most part to the increased amount of trash in the harvested cotton brought on mainly by the fact that machine harvesting is now employed extensively in most areas of the state. It has been estimated that the amount of ginning trash produced, incident to the ginning of a standard bale of cotton, amounts to as much as 2,000 pounds. You can readily understand the problems associated with this industrial-agricultural development. We are fortunate in Texas in having a very active and progressive Cotton Ginners' Association which has worked with our department very diligently in an attempt to alleviate this air pollution control problem.

In several areas of Texas, there have risen complaints of air pollution caused by sulfur and hydrocarbon compounds. Hydrogen sulfide gas emissions from oil fields and refinery operations have caused damage to paints as well as discomfort and fear to the individual and his family. Ethylene emissions from petrochemical operations have been reported to cause damage to vegetation such as cotton. Sulfur dioxide from smelter operations, sulfuric acid and fluoride compounds from fertilizer plants are presenting problems of damage to paint, vegetation and glass and are the cause of discomfort to residents in the areas involved.

The petroleum and petrochemical industry has made strides in abating discharge of waste products. These include control of carbon black from our furnace-black plants, reduction of catalytic cracking units, reduction of hydrocarbon vapor losses from storage tanks and process units, sulfur recovery from hydrogen sulfide gas, changes and improvement in processes, and development of new methods to utilize these waste products to the betterment of man.

At present, to my knowledge, the only abatement measures utilized to control the waste products emitted into the community atmosphere from missile units and space craft is the natural ventilation provided by nature. This problem no doubt is being given serious consideration by the National Air Space Agency.

The concentration levels of burned and unburned gases produced by moving traffic are increasing in our congested traffic areas. Much research has been done on reducing these exhaust emissions by converting the hydrocarbons to carbon dioxide, but it has been only recently that efforts have been made to require that devices be provided on automobiles and trucks that would reduce these objectionable emissions.

In Texas, except for a few local municipal ordinances, there are no state laws or regulations dealing specifically with air pollution control. Legal action may be taken under the general statutes which deal with the abatement of nuisances. I do not wish to imply that air pollution control can or should be accomplished only by direct legal action; however, the lack of basic statutory authority to deal with emergency incidents and to control the chronic offender does not make for the best arrangement in securing corrective action. As indicated previously, I believe that control can be most effectively brought about by legislation giving authority to local government to administer reasonable and technically substantiated regulations.

During and after World War II, attention was focused on air pollution in Harris and Galveston Counties. In 1952, hearings were held by our department at Houston and LaMarque to determine the extent of the air pollution problem. The outgrowth of these hearings was the institution of a Water and Stream Pollution Control Section in Harris County under the supervision of the Harris County Health Department; and the establishment of a committee of representatives from industry in Galveston County to which air pollution problems received by the Galveston County Health Department are referred for corrective action.

An air pollution committee consisting of representatives from industry and citizens in the county and under the sponsorship of the County Judge has been in operation since 1958 in Jefferson County. A part time chemist is employed by this county to maintain a check on pollution levels in the area. The chief of our air pollution program serves as a technical advisor to the sponsor and his committee on air pollution matters. I feel that this is the proper approach to air pollution control in Texas, that is, the encouragement of local air pollution control committees consisting of interested citizens representing the various groups of community life. We further believe that such problems should be met and dealt with by the people affected as well as those responsible for any pollution of the atmosphere. This grass roots approach has worked in many, many instances and is, usually, in the final analysis, the most satisfactory approach for all concerned.

In 1957 and 1958, in cooperation with the U. S. Public Health Service, an appraisal was made of air pollution in the State. A report was prepared and published and is entitled "Air Pollution in Texas -- An Appraisal", by Paganini, High, and Kenline.

In 1957, through the cooperation of the Texas State Health Department an air pollution grant was made by the U. S. Public Health Service to the El Paso City-County Health Department, El Paso, Texas, to study air pollution in that area. This project was completed in late 1959 and is published in a report entitled "Air Pollution in the El Paso, Texas, Area", by Manuel D. Hornedo, M.D., Director, and J. Harold Tillman, Chief Engineer. To augment this project, an air pollution survey was made of the city and its neighbor, Ciudad Juarez, Mexico, in early 1959 at the request of the City of El Paso, and a report was prepared and presented to municipal officials.

Since the institution of the National Air Sampling Network by the Division of Air Pollution of the Public Health Service, the Texas State Health Department has cooperated in the National Air Sampling Program. This being accomplished through the further cooperation of local health departments of the eight cities involved and the Texas Game and Fish Commission at one non-urban station. In 1963, the Texas Air Sampling Network, which is similar in operation to the National Air Sampling Network, was expanded to include eleven additional cities. Recently, three special air pollution studies were made. These involved determination of lead levels in blood, atmospheric lead levels, and pollutants contained in the atmosphere of a one-industry town.

In relating the control of atmospheric contaminants to urban planning, I intend to follow very closely the observations and recommendations made by Panel D, "Effects of Air Pollution on Urban Planning and Development", of the recent National Conference on Air Pollution. The final report of this Panel pointed out that the planning agency ordinarily is not, and probably should not be the department responsible for enforcing air pollution control ordinances. The planning agency is primarily concerned with the location of residences, industries and agriculture, parks, recreation areas, and freeways, so that normal healthy community growth may occur with a minimum of confusion and conflict of interest. All urban components, the plant owner, residences of the community, etc., all are interested in air pollution, and a carefully drawn regional plan is necessary in the consideration of all interests. I think that such a comprehensive plan is one of the best supports for any zoning proposal.

Zoning should play a very important part in controlling air pollution. Zoning may be used for locating industrial plants and industrial parks, and in such cases the planner should keep in mind local and regional weather phenomena, topography, future growth trends, and air pollution concentrations. You realize that air quality is an area wide problem, and as I have indicated previously, there is a definite need for air pollution control districts. The district should furnish the planner all necessary information which could be used to prevent point-source air pollution problems from arising. The district should also assist by adopting ambient air quality standards and by furnishing specific information on processing and waste treatment methods used by industries requesting changes of zone classification. I feel that this is a very reasonable arrangement in that only the air pollution control expert can provide information on the invisible gases involved capable of producing human discomfort and property destruction, some of which might be eliminated through proper industrial location.

Detailed urban planning goes further than the physical development of an area in the control of air pollution. I refer to the fact that automobiles make significant contributions of pollutants to the community atmosphere. The tremendous growth in the number of car owners will undoubtedly continue, and associated problems will increase accordingly. It is not likely that car ownership will be limited, and certainly this recommendation is not made here. It is, therefore, obvious that it would be appropriate to reduce by urban planning the miles of commuting distance between homes and places of employment, and between homes and recreation in our rapidly developing metropolitan areas. The development and distribution of employment opportunities into established suburban cities would eliminate unnecessary commuting and would improve the visual environment by bringing the city and country into closer harmony and by building cities of character and shape. Such an arrangement would reduce most of the municipal services by providing relatively compact relationships between residential and industrial developments.

I am sure that there will always be a certain amount of commuting, but the extensive crisscross commuting from home to work and from home to recreation would be reduced, and the chief source of pollution alleviated somewhat.

I am aware of the fact that every city and every region is in some respects unique, and I am not advocating or suggesting a standard urban plan, based only on air pollution control considerations. I do believe, however, that if the climate, the topography, economic growth, and other basic planning criteria are considered by the planning department, the problems of air pollution will be significantly reduced in most city renewal projects and in urban development generally.

Possibly for the first time in history, man has within his grasp the ability to control his environment. I am not suggesting that all of our environmental health problems have been solved by any means, but certainly great strides have been made and considerable knowledge has been attained in the past decade which is assisting us now more than at any other time in the history of public health in controlling natural and man made environmental hazards. We are dealing, in air pollution control, with the most basic commodity of all-- the air we breathe, and I am confident that through a coordinated approach and effort by members of the engineering profession, municipal planners, public health officials, and others that this community problem can and will be controlled effectively and for the good of all.

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PLANNING FOR INDUSTRY IN METROPOLITAN AREAS

S. B. Zisman

There are, in general, two main approaches to the problems of environmental health--the prevention of unhealthy conditions and the control of conditions adverse to health.

Prevention is in large part a matter of planning. In its positive and creative sense, planning is an art of disposing and composing spaces for various kinds of activities and uses and the means of moving to, through and about those spaces. In planning for use spaces and circulation, the aim is not only to provide locations for use facilities but also to create the most favorable conditions of environmental health--enough room for the efficient utilization of the space, full advantage of light, air, breeze, land form and landscape, and safeguards against congestion and pollution.

While planning is the exercise of foresight, it cannot by itself ensure the continued maintenance of favorable environmental conditions, nor can it solve all the mistakes already committed in place and space. It becomes necessary to exercise control of conditions-in-the-making and conditions already made. Control means regulation and enforcement and these both flow out of and extend the processes of planning.

Thus the planning of land, buildings and facilities is our main means of prevention, and regulation and enforcement our main means of control, all interrelated forces in the assault on the problems of environmental health.

This paper addresses itself to one of these forces-planning, and to one aspect--that of planning for industry for metropolitan areas.

It is not only pertinent but essential that we be concerned for the metropolitan area, for the problems of industry, most particularly as they relate to environmental health, are no longer parochial, isolated, or scattered. Even as modern technology in communication and transportation has made possible extension and distance, it has intensified the problems of concentration and scale. Modern technology has widened the horizon but shrunk the world.

We may take as a first significant point that planning must more and more encompass the metropolitan area if not the region. The demands on the resources of land, water, and people have increased in scale so that we must work in a higher order of magnitude. Where once we could work comfortably at the level of the lot, the street, and the creek, we must now work at the scale of systems, networks, and regions.

If planning generally must be done on this order of magnitude, the planning of industry must also be done at larger scale. The concept of the industrial district or the industrial park is commonplace. When we face the problem of an isolated plant or the haphazard industrial site, we are in a way rather startled or at least we have come to think of such a situation as rather archaic. We shall, of course, continue to be faced with a multitude of such situations and we shall have to deal with them, but in every case we are confronted more and more with the need of relating even the smallest unit to its metropolitan or regional network and system.

In many cases, truck transportation has cut industry's umbilical cord--the railroad. While "railroad access" may still be good promotion for industrial location, "highway access" is even a more compelling argument.

> I once was called on for location of a cashmere wool knitting plant. The site that had been under consideration was aside a railroad line. Study indicated only limited railroad transport as an important factor in the operation of the plant, which had come to depend more and more on truck transport. Railroad service could be economically maintained even without a railroad siding. Other factors were of major importance--the need for expansion, uncongested access by workers most of whom were using private automobile transportation, and, interestingly enough, the vague but significant matter of the environmental amenities.
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> In another case, the planning of a major industrial facility included the requirement of railroad access. It was provided for in the plans but now after several years no railroad use has been necessary. The plant, which produces probably the largest output of transistors in the world, has a far greater problem of moving over 6,000 automobiles off and on its site daily. The highway network is of far greater importance to this plant than the railroad and promises to remain that for many years to come.

I have dwelt for a bit on this problem in industrial planning because it highlights a major change in the conditions and requirements we face. There are other important changes, some of which relate to changes in communication as well as transportation and many of which relate to the changes in product and processing.

Yet with all these changes there are some factors which are fundamentally unchanged. Technology has solved or displaced some problems of waste disposal, but it has created new ones. The electronics plant referred to above has new problems of chemical waste disposal. There are vast new problems emerging in the disposal of atomic waste.

In every case, we are dealing with a particular piece of land in a particular location, and fundamental considerations of drainage, orientation, and landscape depend on basic, if seemingly old, principles.

Such matters as orientation, conditions of climate, flow of drainage system, relation of built land to open space, and density of development are fundamentally unchanged. Technology has solved or displaced some problems of waste disposal, but it has created new ones. The electronics plant referred to above has new problems of chemical waste disposal. There are vast new problems emerging in the disposal of atomic waste.

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Such matters as orientation, conditions of climate, flow of drainage system, relation of built land to open space, and density of development are fundamentally unchanging factors in industrial planning.

It remains true, however, that technology not only brings in new problems and variants of old problems, but also offers ways in which they can be solved. Under the present regime of research in industry, there would seem to be little excuse for not solving through technological means many of the problems which have been in large measure by-passed. While technical gadgetry is not the objective, we must make use of technology to order and control pollutants before they enter the land, water, and air.

There must then be a harnessing of planning and technology, the one to give sense, order, and relationship to the environment; the other to modulate the conditions for which the planning is done.

In the broader aspects of comprehensive planning, there are policies to be evolved to guide the planning of industry in metropolitan areas. It may be useful to discuss briefly three important policy areas.

First is the question of the zoning of uses. For a long time the policy has been to group the same uses in distinct zones--residential, commercial, industrial. In time it has been necessary to articulate these uses more carefully so that a simple industrial zone was differentiated in so-called heavy and light industry. Even this does not serve sufficiently today under the impact of industrial complexity. How is heavy industry to be effectively defined. Is it a question of size, deleterious effect on the surroundings, or the nature of the product? Is warehousing or storage an industrial use or part of a system of commercial use in distribution? Is a plant under complete automation and control, small as well as large, heavy or light industry? Are industrial research facilities industrial uses or education or a new classification?

It may be less and less justified to treat industry as a bad neighbor, segregated from other uses. There is the classic case of the watch factory in Long Island where none of the usual arguments of traffic congestion, noise, fumes, or unsightliness would hold. Many a dull suburban subdivision might be more interesting if it housed a handsome new industrial plant in its midst to break up its monotony. Does it help education to force long consuming trips on school journeys to see how the industrial half lives? There may be some point in the growing concern for the community district designed for mixed uses.

A second and related policy question is the matter of the industrial area itself. There is now evidence of the planned industrial park, big enough in scale to be planned as a vital element of the metropolitan area and linked to it as an integral part and not merely as an industrial subdivision. Perhaps the example of the Great Southwest Industrial Park as originally planned would serve as case history.

When we planned this area, it was as part of the Dallas-Fort Worth region, not as an isolated subdivision. Further, the plans provided not only for industrial plant sites, but for industrial communities with eating, hotel, service, and recreational facilities. The first building was a restaurant, and a bowling alley was one of the earlier buildings along with some factory facilities. The plans provided for a church and a new hotel has recently been opened. Within its property is a pleasure park--"Under Six Flags".

A third policy area has to do with the interpretation of industry itself, the changes taking place as to its nature and relation to society and the economy. It is difficult to gain perspective on this question since we are in the midst of rapid changes. The effects of automation are yet to be known. It would be helpful to take fresh looks at both the product and the processing. How does modern food processing affect the industrialization of the rural reaches of the metropolitan area? How does the advance in assembly planning affect industrial distribution in relation to markets?

It is clear that there are other far-reaching questions to probe--the relation to defense and security planning--new sources of power--problems of growth industry--problems of industrial satelite activity in connection with primary production--these require a long text which must perhaps be revised even before completion.

We are, I believe, in a period, not of repeating known answers by rote, but of problem solving, of working out the immediate problem within the context of a comprehensive plan.

The objectives are fairly clear and in common agreement. We seek to attain a healthful environment for industry and with industry. Both prevention and control are our approaches in new development and in accomplished errors. Planning by its function is our major means of prevention--planning on a metropolitan or regional basis--planning based on basic principles of land, water and air use--yet recognizing the power and disruption of technological change.

Some standby devices such as zoning need to be re-examined. New forms such as the planned district and the planned mixing of uses are emerging. Above all, the changes in industry, in itself and as part of the environmental fabric, must be reinterpreted to point out the directions which planning for industry can and perhaps must take.

THE MEXICAN BORDER PLANNING PROGRAM

Ernesto Ayala

A democratic tenet holds that as long as we have a neighbor sick or in need, our health and our well-being will not be complete. Even if this reasoning were inspired in egoism rather than human solidarity founded on the need for a better life, planning has much more favorable results for a democracy than for a totalitarian regime.

The United States and Mexico are bound together not only by geographic circumstance but also by reason of friendship encouraged by common political and social ideals; in addition, by ties of an economic nature from which mutual advantage for the two countries can and should derive. The social tranquility of this hemisphere, the cordiality of its relations, and its progress, as well as the basic purpose of satisfying insofar as possible the needs and requirements of the large masses of population on the American Continent, impose on us the resultant obligation of working and approaching our problems in a coordinated and comprehensive fashion.

Planning stems from a multiple and inescapable reality:

a) population growth within a limited territory;

b) the misuse or abuse of natural and human resources, thus limiting definitive action in response to the demands of population growth;

c) uneven economic development in certain regions, with the abandonment of others, to the detriment of social harmony;

d) failure of production to keep up with the growing demand in centers of consumption;

e) the resultant demand for sources of occupation through the installation of industrial centers;

f) the necessity, in short, of bringing the national economy in line with regional forms and needs, looking to sources of employment, production, consumption, and human relations.

In other words, independent of its doctrinal origins, planning is imperative in the face of these tangible realities that must

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be weighed in terms of degree of urgency, need, and justification, in a supreme effort to find ecological satisfaction for the human drama of our age.

Thus it is that ecology, divorced from its strict (biological) meaning and translated into human drama, constitutes the fundamental substance of planning: to give the human being an environment adequate for his subsistence, or tailor the social and natural environment to the needs of the man inhabiting it.

Reducing this order of ideas from the universal human drama to the area with which we are immediately concerned, the need and urgency of planning is justified to an equal or even greater extent, bearing in mind that the happiness and good fortune of our peoples as free and democratic nations, depend, in the final analysis, on the adequateness of the diverse resources applied to regional development.

A brief consideration of population statistics, natural yields, and urban and social needs is sufficient to give an idea of the enormous task that lies ahead.

Mexico figures among the countries having the highest population expansion in the world. The latest statistics show that the annual rate of demographic growth in our country amounts to 2.9%. Examined from a cumulative standpoint, this increment clearly indicates that Mexico is experiencing the phenomenon that the economists term the "population explosion" of America. According to recent data, Mexico ranks fourth among the countries of the world in point of speed of population growth.

This has a highly important consequence on Mexico's economic life: If the rate of increase in national income does not exceed that of population growth, the Mexicans' standard of living will be gradually undermined, and instead of becoming richer, the country will become poorer. It is therefore imperative that national income expands at a greater rate than the population, which will mean a steady increase in resources and, consequently, in the Mexican standard of living. In this way our country will be able to place herself on a level with the more developed nations, within the foreseeable future. In this connection it is interesting to note that the national product, calculated at constant 1950 prices, expanded during the decade following that year at an average annual rate of 4.9%. The increment in 1961 was 3.5%, and demographic growth followed the average rate of 2.9% already mentioned.

This rate of growth leads to the assumption that by the end of the century (just 37 years from now) the Mexican population will be on the order of one hundred million inhabitants.

The economic tendency in the present century, in response to the population increment, has been toward industrialization, on the one hand, as a direct consequence of freedom from work in the fields and the population shift from rural to urban. By the close of the century, urban population is expected to outdistance the number of rural inhabitants and account for 60% of the total.

For this urban population, food will have to be produced; for the newly-formed cities, services will have to be provided; to handle normal population transfers, means of communication must be established as well as training and cultural centers and places for recreation. In short, the stage must be set on which the Mexican of today and tomorrow can find fulfillment for his aspirations and anxious yearning.

Having taken a broad look at these facts it would be well at this point to examine an aspect of particular interest to us: the headlong demographic growth of our border cities and zones, which, in the nine principal municipalities along our northern boundary, shows the highest index in Mexico, particularly during the period 1950 - 1960. The importance of the population increment in that border area during those years is calculated at 83%, in absolute terms. In the rest of the nation the total increase in the period mentioned amounted to only 34%. Expressed in absolute figures, the 83% expansion in the nine municipalities under study derives from a comparison of a population of 849,058 in 1950 versus 1,564,568 in 1960, with the most noteworthy concentration corresponding to the following cities: Ciudad Juarez, Tijuana, Mexicali and Reynosa.

The foregoing discussion deals solely with the strip of Mexican border territory and the specific demographic phenomena observed in my country. However, it is most important to point out that foreign demographic phenomena also exert an influence on domestic life. Although the foregoing aspects are those which are the most pertinent to the subject at hand, I cannot fail to mention that the other side of the problem is the creation of an adequate rural medium that will compensate the farm population for the lesser returns on effort expended, and encourage it to improve and expand agricultural and livestock production in such a way that it will stimulate rather than hold back industrial output, adequately supply all needs, and give the rural inhabitants a sizeable capacity for consumption, with the consequent benefit to their own standards of living and to national production.

Thought should therefore be given to the need for endowing the rural population with better living conditions through the supply of services such as electricity, water, health, and others that will discourage them from emigrating to urban centers where they create unsolvable problems and lower the standard of living. The problem as outlined is twofold and must be given a twofold solution.

The entire Mexican frontier zone has a population of five million, whereas the neighboring area in the United States has more than sixteen million inhabitants. The fact of being neighbors, which results in close relations between the two border populations, the interchange of ideas and goods, and elements of mutual economic dependence, obliges us to give joint consideration to the entire body of problems and to seek, on your behalf and our own, practical and immediate solutions, after the fashion of good neighbors and with a deep sense of unity and rapprochement.

The impressive population growth in the border cities in northern Mexico has created problems of all types, ranging from the widespread and basic social ones to those in the economic sphere, and others having to do with the municipal services that must be constantly expanded and improved. More schools must be built; the water supply should be more ample; housing, sanitation and other problems are demanding attention in increasing degree.

However, the preponderant and general need for immediate satisfaction is of a basic economic nature: Apart from attending to other necessities (which by no means should be abandoned), it is much more urgent to supply these zones with food, create new sources of occupation, raise the standards of living of the population, and construct their economy on sounder and safer bases than at present, thus obviating a possible situation of dissatisfaction and unrest.

In view of the importance of these problems, the President of the Republic created the National Border Program, for which he outlined precise objectives aimed at contributing to maximum degree, in line with existing possibilities, to the solution of the problem of Mexico's border areas. For this reason the National Border Program, in close coordination with the state and municipal authorities, with industrialists and businessmen of Mexico, with the residents and active forces in the frontier cities, with federal agencies and specially with the Ministry of National Patrimony, has undertaken the task of improving the physical, social, and cultural conditions of the border areas.

In drawing up the National Border Program it has been necessary to have recourse to a doctrinal stand and to the political and social considerations that advocate planning as a development technique. That stand and those considerations are basic to an understanding of the Program.

In a broad sense, planning comprises every phase of human life insofar as such life is located within any given territory. In other words, the substance of planning is the human condition, and its working instrument, the physical environment.

In the light of the problems to be solved, the urgent need for planning requires no further justification. However, there is still the question of "how" and "when" such planning and its individual stages should be undertaken. Therefore, faced with the need for plan application, a matter that will always come up for discussion is how to go about making such application.

Attempts have been made -- and in some instances with a great deal of serious determination -- to systematize planning or methods of application. Valuable advantages accrued to each of these undertakings. While one may not affirm that they have been eminently successful, neither can it be stated that they were a failure.

In reality, any attempt to find an adequate planning formula will always be welcome and under any circumstances will contribute elements of interest and value; for apart from being a science and a technique, planning is also an art -- the creation, in short, of human intelligence and sensibility.

Insofar as they are general in scope, the foregoing ideas are applicable to urban planning.

The city dweller, the technician, or the man responsible for the community's functioning and destiny, cannot simply fold his arms and leave all the rest up to chance. To follow Richard Neutra's simile, the city can be compared to an exquisite dish served at a banquet -- a dish the organism must be prepared to digest as something of its own, something that belongs to it and is needed for subsistence, something that brings with it life and health.

"A meal is ours only if we can digest it," the above-mentioned author states; "a house, a neighborhood, a gigantic city that is beyond our organic control cannot be our house, our neighborhood, our city."

In keeping with this premise, it is clear that the person most interested in the city plan is the inhabitant himself, and that whatever is established in the plan should serve to guide, orient, and define his own aspirations.

For all the reasons outlined, such a guide should exist. An orientation designed to fit the work to be undertaken, is better than fortuitous improvisation. Thus it is that the Master Plan accepted by the consensus of all participants, authors, authorities, and beneficiaries, must of necessity have recourse to the sacrifice of certain individual interests in order to achieve the common good. This explains, further, why the scope of the plan is limited in advance and a written statement is prepared outlining the criteria for application, the conditions under which it is to operate, and what resources will be available for use.

Having established the basic guidelines, it is necessary also to determine the characteristics of the technical work to be performed that will carry the collective well-being to the individual by means of verdant spaces, meeting halls, a comfortable home, clean streets, educational centers, and the building where the citizen can follow the occupation of his choice. Within the general idea of social and economic progress, your work must always be present, for it is at one and the same time the foundation and indispensable complement of any complete improvement program.

Having come, then, to the concrete problem of border-city planning, the objective is defined in advance. The aim is to achieve the common good, the general welfare, subject only to the limitations inherent in the plan itself.

The basic mission of the National Border Program is determined by the aims outlined hereinafter:

a) To encourage and stimulate the economic, social and cultural development of the border cities, taking care that their balanced interaction does not suffer from deficiencies that could give rise to unfavorable comparisons with the neighboring areas.

b) In the fields mentioned, to incorporate within the national whole all the potential force and all the productive energy of the border inhabitant which by virtue of very particular causes have not heretofore been channeled in their entirety to the national advantage.

c) To exert influence on the physical surroundings as a basic instrument in raising the level of the general welfare.

More specific and detailed objectives have been outlined in various publications edited by the National Border Program. These have to do with promotional efforts of a commercial, industrial, tourist trade, occupational, cultural, and artistic nature, as well as many other undertakings that serve as a stimulus for national betterment.

Insofar as concerns regional planning as such, the National

Border Program constitutes one of the most ambitious tasks ever to be assigned: Through the improvement and construction of commercial, cultural and tourist facilities, the program calls for a decided betterment in the standard of living, first by means of a transformation of the physical medium and later through the operation of a series of services, that will ultimately result in the highest index of progress in the community life of Mexico's border inhabitants.

The Program is neither empowered nor enjoined to study and solve all the urban problems of the frontier cities. The definition of its mission assimilates the particular urgencies of each city but conserves all the traditional attributes of the interested municipalities and states.

In whatever problems it may be necessary and useful to intervene in order to secure a welfare resource, the National Border Program will look to the local interest and will contribute to the acceptance and application of the Master Plan already formulated or in process.

In keeping with the Master Plan, projects in each city will include whatever modifications in urban layout may be necessary.

In Tijuana, for example, the National Border Program has brought about the displacement of the civic center. The Tijuana River area, for many years relegated to the condition of an unhealthful suburb, now constitutes the most efficacious resource to give the city not only the solution to its urban congestion problem but also to provide it with a different and more agreeable facade.

In Ciudad Juarez the civic center has been replaced by an entirely new one. It was imperative in this instance that the center be moved toward more extensive and healthier horizons. The National Border Program furnished an adequate solution by effecting large-scale modifications in the urban layout and introducing in the Master Plan additional motivations for the integration of urban community life.

The same may be said of Matamoros, Reynosa and the rest of the border cities, in which the National Border Program is planning every possible urban project falling within the scope of its resources and objectives.

It is not the purpose of this talk to present a detailed description of the work conducted by the National Border Program; however, a brief reference to future construction projects is in order: international business centers, local commercial centers, trailer camps, luxury and first-class hotels, motels, high schools, museums for art and other exhibits, auditoriums and convention halls, motion picture houses, indoor and outdoor theaters, sports facilities, bull rings, rodeo fields, swimming pools, country and hunting clubs, decorative features, warehousing facilities, and "Gates to Mexico," that will incorporate buildings for customs handling and attention to visitors.

This entire complex of work projects, in accordance with the principles followed by the National Border Program itself, will require the intervention of the local authorities and of private initiative whose function in the matter of municipal services and improved non-tourist urban housing, should be compatible with the federal effort represented by the Program; hence the need for projects to conform to a Regulatory Plan (the Master Plan). All should contribute to the Plan's development, complemented by parking areas, parks, sidewalks, sewage systems, potable water supply, etc. Financing for these collateral projects will be forthcoming from the enhanced property values in the areas in direct contact with, in close proximity, or adjacent to the projected centers in each of the cities.

In this way the need, urgency and application of urban planning are justified both as regards its immediate objective (the realization of projects for the common benefit) and its immediate and underlying purpose of satisfying an earnest desire for the general well-being.

Apart from the matter of money (which is seldom sufficient), attainment of these purposes calls for joint effort, cooperation, interest, and sympathy on the part of all concerned; and the understanding of our neighbors is also requisite. It is imperative that we all cooperate with the National Border Program in compliance with the objectives established.

Gentlemen, whereas on the one hand it is imperative that concrete objectives be set (however partial or modest they may be) for realization in the immediate future, on the other it is equally indispensable to espouse a general purpose and a corresponding plan within which the specific projects, as soon as their completion is feasible, will fall into proper place.

And, above all else, there should be a firm resolve to achieve a peaceful coexistence that is ever respectful of the rights of others. To make constant reference to these ideals is to choose the difficult road; it means believing that it is possible to have surroundings where the human being can develop, but not the selfish instincts of the individual; it means, finally, entertaining a permanent hope in man's ability to live in peace.

The foregoing, for that matter, should not constitute an abstract, isolated ideal, an unattainable dream. Quite the contrary, it should provide the motive force for concrete accomplishments and particular solutions to specific problems. Even the most modest of these should have a direct and obvious connection with the general idea: the stonecutter carving the block, should always know that he is constructing a cathedral; the engineer who plans a sewage system, the doctor who fights an epidemic, the urbanist who plans a city, should all know that they are cooperating in the building of a more just social order: i.e., a social order that offers a chance for higher standards of living for all, a human community and environment worthy of the importance and inherent quality of each of the members.

In this manner also, we will have taken yet another step of great significance in strengthening our ties of friendship, and on behalf of continental peace and the lasting maintenance of democratic regimes in the lands of America.

ECONOMIC DEVELOPMENT IN THE U. S. SOUTHWEST

Dr. Benjamin H. Higgins

Barbara Wootton once said you could lay all the economists in the world end to end and they still wouldn't reach a conclusion. We are in the middle of our project on the economic development of the Southwest, financed by Resources for the Future. Although we have not been laid end to end, we have not reached any clear cut conclusion.

We are interested not only in the prospects for the American Southwest, but also in the general problem of the relationship between regional inter actions and the levels and rate of development of the national economy.

It is possible to argue that an under-developed country is one in which too many people live in the lagging regions, and in which the spread of productivity and income between leading and lagging regions is increasing. This will describe the situation in Brazil, in Italy, in Mexico and every other undeveloped country I know, even in very small ones like Ceylon. All have clear cut divisions into leading regions and lagging ones. We might go further, although there is not so much evidence for this statement so far, and say that lagging regions are ones in which too many people live in depressed areas within the region, and in which the gap in productivity and income between depressed and progressive areas within the region is increasing rather than diminishing.

As far as the United States is concerned there are six main periods since about 1840 with regards to differences in per capita income regions. The data for the period 1840 to 1860 are not so good. In any case, this was a period in which there was relatively little change in the size of the gaps between major regions in the country. And this was a period, so far as I can judge, of fairly rapid growth of national economy as a whole.

From 1860 to 1880 you had a quite marked diversion among major regions, due largely to the lag in growth of the Southwest and the Southeast. These were at that time the poorest regions in the United States, and they still are. But in this period, which begins before the Civil War and continues after it, not only were these regions the poorest but also they were growing less rapidly than the country as a whole.

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From 1880 to 1920, a period of very rapid growth of the economy as a whole, there was a marked centripetal effect, with the growth in the Southwest and the Southeast considerably more rapid than for the economy as a whole.

The 1920's was a period of very slow growth in the national economy. We've heard so much about that boom of the 1920's that we tend to speak of it as a period of rapid economic growth when in fact it was not. The percentage increase in per capita income is the best single measure of welfare, and correlates very highly with health, literacy, and almost anything else. The 1920's was a decade in which per capita income grew much less rapidly than in either of the preceding decades or in the following one. You got nice increases from 1921 to 1927 or 1929, but for the period as a whole the rate of growth was low, and again you have a shift from convergence to divergence in incomes by region. In this decade the per capita real income actually declined in both the Southeast and the Southwest. Thus the whole decade of the 1920's might be regarded as a period of post war re-adjustment which interrupted the long run trend towards narrowing income gaps among regions.

Between 1930 and 1950 there was the most marked centripetal tendency in the whole period under review. The Southwest and the Southeast made especially pronounced gains in per capita income, particularly during World War II when there was a strong convergence of incomes.

The picture for the last decade is a mixed one. During the 1950's the South continued to expand faster than the country as a whole. It rose to 68% of the national average in 1950. The Southwest on the other hand slowed down to a rate of growth almost exactly equal to that of the country as a whole, and remained at a level of 86% of the national average. Some of the rich regions had rates of growth that were more rapid than the country as a whole, others had less rapid growth including the Great Lakes area. Thus the picture is mixed. There is some correlation, then, between high rates of national economic growth with convergence, and of slow rates of economic growth with divergence.

Over the whole period from 1880 (when reliable figures begin) the dispersion of per capita income by region shows a marked reduction. For example, in 1880 the American average per capita income was about double that of the South, the poorest region, and about 165% of the Southwest, the second poorest region. By 1960 the American average was only 43% above the South and only 16% above the Southwest, a marked convergence. The Far West was the richest region in 1880. It had a per capita income more than 4 times that of the South and almost 4 times that of the Southwest. By 1960 the Far West, still the richest region, was only 70% above the South and only 138% above the Southwest

Thus over the long haul there has been a marked tendency towards convergence. The rank order hasn't changed very much, nor have the absolute gaps in income been reduced. Whether or not you regard this performance as a satisfactory one, depends on whether or not you feel that either these absolute gaps should fall automatically or policies should be directed towards reducing them.

I can only say that in comparison with other countries, the American performance is unique. It is legitimate, I think, to compare the United States, Canada, Australia, and Brazil and possibly Mexico. First, (except Mexico) they have roughly the same area as the contiguous United States. They are all part of the new world, countries of European settlement that broke off at some point from the mother country and went their own way. Brazil is the most dramatic case of regional disintegration, with per capita income in the richest state about ten times per capita income in the poorest one. The same is true in Mexico, although it may be that Mexico is over the hump, in the sense that the percentage rate of growth of the poorest states in the last decade or two may be higher than the percentage rate of growth in the richest ones. It will however take another 30 years of continued growth at these rates before the absolute gaps of income begin to decline. So that is a long way to go.

Even Canada and Australia have retained chronically depressed regions, lagging regions which show no signs of resurgence in the way that the Southeast and the Southwest have resurged. The Maritime provinces have been a chronic problem area ever since Confederation. The relative position of the six Australian States remains unchanged. The country remains empty; the people live on their beaches. Except for the artificially created city, Canberra, there is no city of even 50,000 people away from the coast. This is nothing like the American picture of spreading population, urbanization, and industrialization throughout the whole country, a continued process of change which has continued now for 350 years, a process of economic development within which a kind of gigantic game of follow the leader has been played, with one region after another taking a turn at being leader in terms of percentage rates of growth.

We are defining the Southwest to include Texas and other states that produce oil and border Texas: Louisiana, Oklahoma, Arkansas, and New Mexico. The further we go in our investigations the more we feel that Arizona is not part of this region in any real sense. Maybe New Mexico isn't either. Indeed, upon looking at population maps, and maps of population change, you can see that there is a fairly clear cut border which stops somewhere in west Texas, somewhere in mid Oklahoma, and somewhere between Louisiana and Mississippi. But it is equally clear that it goes south of the Rio Grande. There is a long line of cities that probably starts in Chicago. We have been looking only at our own region, with the Dallas, Fort Worth, Waco, Austin, San Antonio line which probably ends in Monterrey. One interesting thing that has been happening is that whereas from 1920 to 1940 or 1950 the growth of these areas was accompanied by higher population densities in the hinterland, it has now reached the point in which the growth of the cities drains the surrounding countryside. This is a fact of very considerable importance to which I will refer later.

The studies being made, not only by ourselves but in other projects, suggest that by far the most important single factor in American economic growth over the past 100 years or more has been the shift out of agriculture into non-agricultural occupations. The correlation between the rate of manufacturing and employment is very high. The correlation between agricultural employment and income is also very high.

Another national fact of importance is the relation of capital movements to excess labor in low wage areas. The capital moves to raw material sources and to market, but capital does not move, without all kinds of pressure, to high unemployment areas or low wage areas.

Another thing we have been doing is to study the designated depressed areas in our own region, and particularly to study migration in relationship to these depressed areas. There are three kinds of depressed areas. Some have chronic rural unemployment. There are some uniformities among these designated depressed counties. In all of them agricultural employment is falling rapidly, both relative to total employment and in absolute numbers. This statement holds for both the chronic unemployment areas and for the poor farm areas.

For the decade of 1950, both gross and net migration from the depressed areas were high in comparison to the national figures, at least for Arkansas and Oklahoma. These are both states which are losing population. The rates of migration are lower in Texas and they are very low in Louisiana. In general there is a correlation between each economy in 1950 and subsequent rates of migration. There is some evidence that it is the younger people who are on the move. There are two exceptions, however. One is a group of various depressed areas in Louisiana and the other is the Texas border counties. There the average age of migration is very low, 26 or 27, and in several of these counties the age is falling. We don't know quite why this is. These may be counties with large Mexican and Negro populations or conceivably Cajun populations in Louisiana with relatively large families. What puzzles us is that the birth rates in Arkansas are just as high and yet the aging in the depressed counties is very clear.

I have a hunch that in the case of border towns the explanation may be that these are culturally parts of Mexico. Families with large numbers of children remain in these border towns rather than migrate to the "real" United States 200 or 300 miles further inland. They stay there because while the conditions in the border towns are not as good as elsewhere in the United States, they are better than "elsewhere in Mexico", and they think of these border towns as part of Mexico. For a while the gross migration of the border towns is very high. What seems to be happening here is a constant inflow of young families who stay there for 3, 4, or 5 years and then reluctantly move on to "the United States", so to speak, improving their language and so on. This is the kind of thing that can only be determined by spot check of field studies in the border towns; we can't get it by statistics alone.

Some depressed areas in Texas and Louisiana have actually gained population. These are mostly urban areas. These are also areas of relatively high per capita income. There is a good deal of evidence that urban centers which are industrializing, rapidly attract people in numbers considerably in excess of the job opportunities that are being created. So they show up as chronic labor surplus areas and they get designated as depressed areas when in fact they may be areas of rapid growth. This is true of some counties in Louisiana and northeast Texas. They are classified as depressed but are actually experiencing industrial boom as measured by growth of manufacturing, employment, and income. You have industrial investment but it is not enough to drain the surrounding poor farms altogether. The rate of job creation is less than the natural rate of population growth.

We first found some rather surprising "non-correlations". For example there seemed to be no simple correlation between migration rates and per capita income. One would expect off-hand that out-migration would be mainly from the relatively poor counties, but there is no clear evidence that such is the case. Secondly, there was no simple correlation between the ratio of manufacturing to total employment and migration. One would expect that the out-migration would come mainly from the agricultural counties, and not from manufacturing counties, but this correlation didn't show up. There may be some reasons for this. These studies show that some regions already have a high ratio of manufacturing and slow rates of growth. In the general picture you get growth by pulling people off the farms into the industrial sector, and where you already have an urbanized and industrialized area, the possibilities for further growth are relatively small.

Nor is there any clear correlation between migration and the change in income. High levels of out-migration do not guarantee an increase of per capita income. You might expect that if a lot of people go away the ones that stay behind can be richer, but we don't find any evidence of this.

There is a surprising lack of correlation between migration rates and proximity to metropolitan areas. We thought that people would move out of the counties around the big cities rather than out of counties that are far from metropolitan areas. Even more surprising is the lack of correlation between migration and chronic labor surplus areas because you would think people would move out of labor surplus areas. Here again the implication is that the growing centers are attracting people in excess of job opportunities.

Multiple regression analysis, relating migration to age, median income, and percentage engaged in agriculture helps some, but not a great deal. We get the following results:

1) Age is nowhere an important factor except possibly in Arkansas. In Arkansas there is a high degree of correlation between migration and all three independent variables, so that interpretation is difficult. It is possible, considering the relatively high median ages of many of the Arkansas counties in 1950, that out-migration had already "drained off" most of the mobile young population in these counties, and that the older population in Arkansas may be less mobile than comparable age groups in other states. This could be explained in terms of the low levels of educational attainment (as measured in number of years formerly spent in school by the population now 25 years old and older) and by the cultural characteristics often attributed to the population of much of Arkansas.

2) The correlation between the net migration rate and median family income is highly significant (at .001 level) for all four states and for the region as a whole. The explanatory power of this variable varies from state to state, however. In Arkansas it explains 33% of the total variation and 53% of the explained variation; in Louisiana, 28% of the total variation and 72% of the explained variation. In Oklahoma, it explains only 15% of the total variation and 33% of the explained variation. In Texas as a whole, median family income explains only 11% of the total variation, although it accounts for 91% of the explained variation. For all four states combined only 16% of the total variation may be said to be due to variation in income although 45% of the explained variation may be attributed to it.

If we divide Texas into two sections--East and West-- the explanatory power of the income variable is greatly increased.*

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*Texas was divided into two sections by drawing a line along the western boundaries of Cooke, Denton, Tarrant, Johnson, Hill, McLennan, Bell, Williamson, Travis, Hays, Comal, Bexar, Atascosa, McMullen, Duval, Jim Hogg and Starr Counties. The advantage of

In East Texas the percentage of total variation explained is increased to 30%, or 54% of explained variation. In West Texas this variable explains 26% of total variation, or 80% of explained variation. The range of migration rates between the two regions does not vary greatly nor does the range of percentage employed in agriculture. However, the range of median family incomes is significantly different. The mean migration rate for West Texas is -.12 and for East Texas it is -.13. For West Texas the mean of the county median family incomes is $2642; for East Texas it is $1964. The mean of the percentages employed in agriculture by county for the Western section is 33%; for the Eastern it is 30%. The average median ages of county populations are the same for both sections.

By dividing the state we created two regions which are more homogeneous with respect to the variable in question: median incomes. Income differentials do seem to play some role in determining migration differentials in both regions, but the level of income associated with a high out-migration rate in West Texas is considerably higher than the level of income associated with a comparable out-migration rate in the Eastern Section.

In Oklahoma (and probably the whole Southwest) the explanatory power of the income variable would have been increased if we had regrouped the counties in some similar manner. In Oklahoma the same discrepancy between the Eastern part of the State and the Western part exists and the data for the region as a whole reflect this difference in Texas and Oklahoma. Had Oklahoma's seventy-seven counties been so divided, the samples would have been too small.

The income differential which is important in bringing about migration may be that which exists in the immediate area. Or it may be that by dividing the state in this way we have in effect removed other unknown factors by creating more homogeneous areas with respect to these variables, thereby making clearer the effects of income differentials.

Except in Oklahoma and East Texas, the percentage employed in

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this line is that, in its northern stretch, it closely follows the geological division between the blackland coastal prairie and the North Central plains. In the South it is somewhat arbitrary. Nevertheless, since it puts all of the central Texas Metropolitan areas into the Eastern section, it has the advantage of separating the more heavily metropolitan East with its poorer agricultural areas from the West with its large scale agriculture and ranching.

agriculture makes the interpretation difficult.

3) Although these three factors together afford some explanatory power in dealing with migration differentials, they are not sufficient. In Arkansas we have explained 62% of the total variation; in Louisiana, only 39%; in Oklahoma, 46%; in Texas as a whole, 12%; in the Eastern Section of Texas, 57%; and, in West Texas, 32%. The hypothesis seems to work fairly well in Arkansas, Oklahoma and East Texas.

The cities of the Southwest are among the most rapidly growing in the country. The rate of urban growth in the Northeast is about the same as California and Florida. The Southwest urban family income is very much below the urban Northeast, by about $1200, while the per capita income is about $2800 or $2900 for the country as a whole. There is no correlation between the rate of growth and per capita income. You might think that the rich cities would grow more rapidly, but they don't. The Northeastern cities are about twice as industrialized as those of the Southwest and the ratio of manufacturing employment is higher. A very large proportion of employment in Southwest cities is construction. Growing cities are building cities. An astonishingly high proportion of the employment is in services, more than twice the percentage of the Northeast. Many of these services show up also in the income figures. These are low income people in domestic services: barbers, beauticians, etc. The Southwest has a much larger proportion of labor force in retail sales at low salaries and at a relatively low volume of sales per employee--again a kind of disguised unemployment.

This is a region which is still relatively unindustrialized, still rather dependent on production of raw materials and food stuffs. For this reason it is not a self-starter as a region. The spread effects come from the rest of the country to the Southwest and not the other way. It looks as though there is a kind of watershed in terms of the rate of national economic development, on one side of which the Southwest will grow less rapidly than the country as a whole, on the other side of which it will grow more rapidly than the country as a whole. When the country as a whole is growing very rapidly, the Southwest, with the kind of occupational structure it has, will grow more rapidly than the national economy. When that happens the whole thing gets into high gear. This creates opportunities for people who move off the farms into the cities and from cities with low productivity jobs to cities with higher productivity jobs. A process of upgrading takes place and depressed areas begin to disappear. When you have a low national rate of economic growth, the growth of this region tends to be below the national average. The whole process of movement from low productivity occupations into something else is slowed down and depressed areas appear.

The United States as a whole may be approaching a situation which we might call a "climax economy", using a term from biology. The climax of vegetation is the end of a long process which remains unless you get something really dramatic and discontinuous. The United States may be approaching this kind of climax economy in the sense that the ratio of the labor force in agriculture, for the country as a whole, is about as low as it can be for a country whose comparative advantage is most clear cut in the field of agriculture. The advantage in productivity in this country compared to other countries is much greater in agriculture than it is in manufacturing or services. It would be ridiculous for this country not to be an exporter of agricultural products, because this is where our real advantages lie. And that means that we must have some people left on the farm. You reach a point where the rate of movement off of the farm is geared to the rate of technological progress in agriculture itself. The rate of growth in our economy previously was the result of a combination of population growth, population movement, resource discoveries, and structural change. Now we are left with technological progress alone.

The rural areas are being emptied, but still have a long way to go and that is why this region can grow more rapidly than the nation as a whole when the nation as a whole grows rapidly. But even this region is reaching a point where urban growth is going to be limited to the natural population growth of the cities. Once you have drained everybody off the farms that ought to be drained off, in terms of relative productivity, the main source of urban growth will disappear.

Thinking in terms of policy, one other point is to be made. For many generations U. S. growth could take such forms as moving from bad farms in New England to good farms in Kansas. Such growth did not require a higher level skill. Then you had the long process of moving off the farm into industry. This process can no longer be the main-spring of American economic growth. From now on its got to be moving from industrial occupations to other, higher-productivity industrial occupations. Such movement requires acquisition of higher levels of skill. This conclusion throws the whole of economic development back on education, training, research, and all those things which contribute to the technological change.

Now to me this suggests that in seeking solutions for distressed areas we have thought in terms of places and not enough in terms of people. We probably don't have the right people, the people who have the requisite skills. Maybe we don't have the requisite health standards. What we have to do is to make it possible for people to move to higher level occupations. This may mean in some cases moving from one place to another. It may mean in some cases staying where they are. Instead of thinking, "What can we do for the East Texas towns, what can we do for the border towns?" We should probably be thinking, "What can we do for those people?" In some cases the answer may be that better opportunities can be provided where they are if at the same time they get some up-grading in skill. In other cases the answer may be that they will have to get out after some up-grading in skill.

This line of reasoning also means, as far as policy of the Federal Government is concerned, that probably the most useful thing the Federal Government can do in depressed areas in the Southwest is to accelerate the national rate of economic growth. When that happens the Southwest will grow still more rapidly, and this growth of the region as a whole including the region south of the border will provide the opportunities for people to move into employment and higher level productivity. Policy designed to promote national economic growth is of the utmost importance to depressed areas anywhere. Policies should be directed toward human investment, raising the skills of the people who are now unemployed or are poor farmers, and permitting them to move into higher level occupations.

ATTACKING THE PROBLEM OF ENVIRONMENTAL HEALTH PLANNING

Norman E. Tucker

Erling D. Solberg, a philosophical planner, is credited with the statement that pups of unknown ancestry grow up to be dogs of undetermined size and shape. Many communities are comparable to dogs of undetermined size and shape, and this situation of unplanned animal husbandry is comparable to unplanned cities. Because of the lack of planning, we have problems. I don't know whether you classify your particular community as a "dog" or not, but in traveling throughout the United States, I have seen few communities that, in my estimation, are not "dogs". Those in this category were not planned for the developments of this day and age.

A planning process must be applied to our communities to prevent continuance of today's problems, including those of environmental health. I would like to present to you a planning process which a community or region may use to approach and attack its problems realistically.

Two types of planning must be considered. The first type is remedial - putting out brush fires, so to speak. You must, in your individual locality or region, determine what must be taken care of remedially and attack that particular problem, which, in the true sense, is not really planning, but merely correcting. The second type is what we call preventive planning. This is where the planner is brought in. In this type of planning we hope to cope with the problems not only of next year, but of 10 to 20 years in the future. The steps of this process are applicable to any type of planning; they are the "modus operandi" of attacking the problems of the urban area.

First, we must consider basic conditions. What does a planner see when he surveys the basic conditions of a community? Assume that you could get into a helicopter, rise to a height of 25,000 feet, and look down upon your community. What would you see? You would see your community's basic growth form. This overall view of the growth form is an aid for categorizing a community. One type of growth pattern is what the planner calls a starfish growth. It indicates that a community wants to stay together; a surface tension causes it to remain a cohesive mass. It slowly spreads out along the major transportation routes. This is a desirable community. Industry is thinking about coming in. The existence of this type community implies that the politics are good and that no one wants to leave. The people are trying to stay close together. The area may be basically monoreligious; it may have a good tax structure and good schools. It probably has many of the elements that make people want to stay together as a community. Few of these communities remain in the United States. They are in contrast to the previously mentioned "dogs."

The next growth type is the so-called cluster growth, also called the hedge-hopping, grasshopper-type growth. For some reason, people want to hop out of the central city and start their own community which they think will be better. These clusters, located 1 to 3 miles out from the core city, immediately indicate that something is wrong with the central city. It may be decadent in politics or actual physical structure. Maybe the tax base is unbalanced. Since there are a number of possible reasons for this failure of the central city, a complete survey of the community is necessary to determine all of the factors.

The third growth classification has a new terminology - a spadial nodal growth. This is the cluster-type community growing out into a big node. A magnetic force draws the people in that direction. Maybe the attracting force is topographical; maybe it is similar to the Tucson-Phoenix complex. Although the two cities are 150 or so miles apart, a tremendous spadial node is reaching out of Tucson toward the Phoenix metropolitan area. Attracting forces must be considered as far as planning the growth of a community is concerned. Understanding these growth patterns will help us attack the present problems and plan for future growth.

Another kind of metropolitan area is a combination of all three of these growth types. We can sectionalize the metropolitan area to find out which section tends to be a cluster, which has the spadial node growing toward a neighboring city or other attraction, or which tends to remain in the starfish type growth. Each section in a metropolitan area has a collective personality as does the small community, The planner must study this "personality" rather seriously in determining the basic conditions of the community. The first step, therefore, in attacking the problems of environmental health is to determine why the community tends to grow in one of these basic patterns.

The next step in the planning process is the basic inventory. Here I recommend the Environmental Health Planning Guide* which will help you inventory your community. The Public Health Service has conducted several courses in Urban Planning for Environmental Health. These have resulted in such inventories of the host communities. There are also incidents where community organizations have had the intiative to make an inventory of their community in order to analyze their own environmental health problems. How can you plan for the future unless you know what remedial planning must be accomplished before you launch into effective preventive planning? The Environmental Health Planning Guide is basically a series of questions that can be asked in any community regarding health agency operation, planning agency operation, air pollution control, housing programs, radiological health, refuse collection and disposal, sanitation programs, sewerage services, and water supply services.

The question always is asked, "Are technical skill and knowledge necessary to conduct such a survey?" No. In Fort Wayne, Indiana, a successful survey was done by lay citizens representing the League of Women Voters and other organizations. In Lake County, north of Chicago, a survey was conducted through cooperation between the Lake County Planning Department and the Lake County Health Department. The Guide is available to you, your health department, your planning department, your civic organizations, or to anyone interested in determining the basic inventories of your community.

The third step of the planning process is to determine the goals of a community. No progress will be achieved if the growth plan is contradictory to the desire of the community, and particularly if the politicians are opposed to it. The planner must know the type of community the citizens want - urban or country atmosphere, heavy or light industry - and plan accordingly.

The next step is to bring in technical proficiency. A problem arises in this area when we realize that only 6% of the cities with 10,000 to 25,000 population have full-time planning directors. I want to stress again the necessity of initiating planning as soon as possible, even though you feel you can't afford it. You can't afford not to prepare for your community's future.

The final item in this process is the successful implementation of the plan. This success element is dependent upon local government cooperation; therefore, in all of our conference advertising we urge commissioners, councilmen, mayors, city managers, and other officials to attend the programs on Urban Planning for Environmental Health. However, these are all busy people. Some serve for nominal fees or for none at all and it is difficult for them to leave their businesses. But, without their cooperation your plan cannot succeed. This is one reason why civic organizations must forever keep reminding, prodding, and pushing for this necessary cooperation.

The second item necessary for plan success is inter-governmental cooperation, between city and city, city and county, county and county, state and city, state and county, state and state, and between regions. Inter-governmental cooperation must precede planning. As yet few areas have adopted this regional concept.

The final element in successful plan implementation is the enthusiasm of the individual citizens. This is probably the most important element because it encourages local and intergovernmental cooperation. With citizen enthusiasm we can work together to develop a successful planning process to attack the problems of environmental health.

The statement has been made that, planning is much too important to be left to planners alone. Because proper planning is vital to the future welfare of our communities, we must involve not only the planners but representatives from all areas of citizen concern in establishing guidelines for the future growth of our urban areas.

We must start now to encourage citizen interest in planning for the future. We must hire the necessary professional personnel to direct our community plans. We must have cooperation, both on intra- and inter-governmental bases, if we are to implement these plans. Let us not leave a heritage of cities that our children will classify as "dogs."

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*U. S. Department of Health, Education, and Welfare, Public Health Service Publication No. 823. U. S. Government Printing Office, Washington 25, D. C. 1962. Price 45 cents.

THE COMPREHENSIVE PLANNING STRUCTURE - PANEL DISCUSSION

Corwin Mocine

Everybody, it seems, suddenly has found out about planners and a love affair is about to develop. One of the things that troubles many of us who for years have been saying, "We have to sell this profession", is that we may now be in danger of being oversold. We had better make sure that we ourselves understand and that other people understand what we do and what the profession's limitations are. One of the things that causes trouble is that planning is so universal a human practice, and the word is used in so many different contexts. And yet over the years we have tended to use it without any modifier, saying "We are planners". Well, what kind of planners? Planners for what and for whom? Let's say today that we are talking about land planners, physical planners, city planners, county planners, and metropolitan planners, planners who are planning the organization, distribution, growth, development, control, and correction of the physical environment in which we exist. They are principally working for governmental units either directly or indirectly.

The first important thing to emphasize is that the planning process which Mr. Tucker described to you needs some further exposition. Whenever someone tries to simplify a complicated process and particularly to organize it in terms of charts for presentation to a group like this, there is always some danger of so simplifying it that it amounts to changing the basic character. The various planning steps presented on the charts take place all together as part of an organic, integrated process. For instance, I don't believe that one can begin to explore the goals of a community until he has a great deal of knowledge about that community. This is true whether this is a community exploring itself or whether it is the professional or technical advisors advising the community. The goals which the community can set for itself must grow out of its current condition, its past history, the trends and forces which are working on the community from outside, and the basic potentialities of the community. These things are not immediately apparent. They will only come to light after a substantial amount of study and understanding and living in the community.

After you decide on the goals, then you do the research. Well, as I have already suggested, the research oftentimes reveals new goals and the plan-making process which comes next on such a chart may very well call for new research. Research for its own sake is a waste of time. It may not be the best way to spend what are always limited resources. But the research that we as professional practitioners need to be doing ought to be structured and corrected, it needs to be turned in the direction of finding the answers that we must know and those things will be different in different communities.

Insofar as goals are concerned, I believe that one of the most fundamental responsibilities of the planner and of the planning process, and one which we have upheld least well over the years, is a responsibility to present alternatives to the community. It is very seldom true that a community has such clear and explicit goals that they can be established without question and without fear of being challenged by other goals. It is also true that nearly always goals are to some extent mutually exclusive and therefore the goal selecting which is fundamental to the whole planning process ought properly to give the community a chance to examine itself, to decide what of these various alternatives are the correct ones, what is the best mix, and what, in terms of achieving this goal, they are willing to give up in the achievement of some other. This kind of thing I don't believe we have done very well. I think that we are now beginning to be conscious of this as a profession, hopeful of finding better ways of doing it. Mr. Cusick suggested the attitude survey. This is one of the places where it would have a very real application.

There is a danger in thinking of the plan as something that can be developed in one operation and thereafter need only be scrupulously followed. This could hardly be more wrong. One of our senior planners in this country, Jack Howard, who is head of the Department of City Planning at M.I.T., coined a phrase which I think is particularly apt here. He said that the general plan is"a changing guide to guide change". The implication here is that the plan, once made, needs to be constantly re-examined, to be kept up to date, to be pushed out into the future as time keeps nibbling away at the bottom so that we are well in advance of ourselves, so that the corrective measures we take will have time to operate and, most importantly, so that we can constantly represent in the plan the highest aspirations and needs of the people. These aspirations and needs change as time goes on, as new forces come into play, and new technological developments take place. No one can make a plan and nail it to the wall and wait 20 years for the time to go by and say, "There we are. We figured this out 20 years ago and now we have done it". It doesn't work this way and no one should have any impression that it does.

Paul Oppermann

In talking about comprehensive planning, I am sure that you are aware that those of us engaged in this kind of work are concerned with physical planning, planning with land use emphasis. The emphasis is not physical planning with blinders on, but rather an integrating in our philosophy and technique of the social and economic goals of an urban area, whether a small city or a large metropolitan area of many cities and many counties. I would like to emphasize that what the planner does in urban development, in the growth and development sense, is different from what other officials and other professionals do. While togetherness is important, separateness is important too, because a profession has to have an internal consistency and logic and special reason for splitting off from some other type of human activity and being a thing in itself. The planner's approach, or a professional's approach, or a teacher's approach has a good deal to do with a general philosophy that is held by the peer group but also it is modified by his own philosophy. Only one human being in a particular mold has been produced each time, even though we are associated as a community.

The planner's research base deals with a lot of things that are familiar to professional engineers and dealt with by architects and by environmental health people and by environmental sanitarians and public health doctors and so on. This research base has peculiarly to do with the environment in the sense that we are concerned with how the land is used and how harmonious uses of land are grouped and how inharmonious ones that have a deleterious effect upon each other are separated, and made subject to regulations. In dealing with the comprehensive plan, whether for a metropolitan area, for a county, for a municipality, or even for a whole state or a whole region, it is first of all necessary to know something about the economy and something about the kind of people who live in the area, ethnic backgrounds as well as native stocks. The social and the economic and the physical are put in the mixmaster together.

The research base for land use planning certainly requires some major subdivision among the functions of land, the functions for residences for living, for commerce, for industry. Yes, these are private uses for land, privately held, privately owned and then there are a good many public ones. Perhaps the primary one has to do with the land common to all, the circulation system or traffic transportation aspects as planned. Finally on the public side there is the location of all the facilities that are required for such things as education, recreation, etc.

Now, in dealing with the relationships of these aggregates of land, the comprehensive planning process visualizes that the community, not the planner, must have the basis for establishing policies which are related to this idea of goals. What kind of community do we citizens want this to be? What kind of a metropolitan area, if we can achieve a consensus and certainly sometimes a consensus is necessary or a degree of consensus. Then we should see how the community should be structured. And in this type of approach to planning, the comprehensive plan might state a long term goal which would have timing phases for achieving a sequence of steps, which has much to do with the zoning ordinance for instance.

I am attempting to cover a lot when I talk about zoning at all. I think a distinction should be made between what the comprehensive plan as a statement of future land use intentions with regard to socio-economic roles is, and how the zoning ordinance fixes that in time and permits flexibility in changing this goal.

I would like to say something about the capital improvement program. I have obviously been talking about either a metropolitan planning program or a county program, or a municipal program but it is probably more realistic to say I am talking about a municipal program because the operating government is clearer there and more familiar to all of us. How do you get a plan such as I have described with its zoning provisions and its other land use regulations to be an integral part of a municipal operation. I think one of the best devices is the capital improvement program in which each of the departments participates. In the case of San Francisco, when I was planning director, there were 60 departments that submitted annually a list of things they were going to build that required money. Each one of these lists of items, say the department of Public Works, had a great many things that it wanted to do in the ensuing year and then within a 5 year period after that. Each one of these items on schedules sent to the planning department in the fall of the year, had to be checked out for what it did to carry out the plan of the city. Now there are two aspects of carrying out that plan. One is a comprehensive one, a bit more vague and general and of longer term. In terms of the zoning ordinances, the plan of public facilities, the schools, and parks, etc., these were very distinctly shown in the plan and the time when something was to be done about a new school or an expanded school or a new playground, was down in the capital improvements schedule. When the council came to doing what it should do and can do and has the authority to do and has the proper implementing to do, namely to provide money by an appropriation, then the timing, the cost, the physical dimension, the location in the physical plan, and the relationship of that thing in the physical plan to school service area that that school applied for, are all down there in very concrete facts.

I have indicated, I think, certainly implicitly and in some degree explicitly, what the professional planner does that is different from what the engineer, the public health director, the municipal lawyer, or architect does. His job as a general planner is to provide a framework within which the architect and the engineer and the county health director can do his particular kind of exparte, can contribute his skills. It doesn't compete with them, it supplements them, it supports them, but it is distinctly different.

Wesley Gilbertson

As I see it, we are shooting for a bigger goal than merely the absence of disease point. We are looking at positive health as in the definition of the World Health Organization. Secondly I would like to use the definition that the American Public Health Association has set up as the four levels of environmental health. These, slightly amended, are: (1) The control of epidemic diseases and death. This is the lowest level, the primitive level you might say. (2) The control of communicable and perhaps chronic disease caused by environmental conditions. (3) The promotion of a comfortable and pleasant living environment. (4) The creation of positive, healthful values by environmental factors. If you look at the country as a whole we are probably in all four stages at the same time.

I am quickly going to run through a kind of back-drop on planning from an environmental point of view. First is the gathering of environmental facts. We call this the examination part. Here we examine water, the private and public systems; sewage, private and public; refuse, very poorly handled in most cases; recreational situations, from the standpoint of their health implications; healthful housing; general sanitation; air pollution; radiological health; neighborhood environmental protection; and then, finally, the total urban environment.

The next general bracket is the diagnosis or evaluation of present conditions and future requirements. Here we are talking about the general requirements of environmental health services, the changing work loads as they relate to the overall, long range picture, and uses as related to environmental health, population, transportation, utilities, community facilities, regulatory measures, and disease. What do these throw into the total picture?

Next is the prescription for development of the environmental health plan. Here again we pick up some of the items that we have taken a look at before, but we now develop a plan for them, the plans for physical development, the comprehensive plan, the neighborhood plan, the criteria. There are a variety of these.

Finally we go to the treatment with the services and the action part of it where we've got codes, we've got capital budget, we've got various types of over-all controls, neighborhood controls, and renewal operations. All these factors fit into this quick review of environmental health planning.

Mr. Oppermann mentioned the separateness and the togetherness aspects of planning. Sometimes I think I see quite clearly how the environmental health area relates to planning and sometimes I get a little bit confused. Its a little hard to understand, to see just how these things fit together. We can put them on these charts, but when you get into operations what really happens is much more complex. First we have been looking around for the last few years for "handles" or criteria to fit into this process. I think that this is one of the areas where the separateness and togetherness sort of come into focus. Notwithstanding the fact that we are agreed here on the importance of planning, its long range needs as a profession, etc., we've got some problems in terms of how you build into this profession the necessary handles. When you think of the whole range of things involved--which no one individual, no one profession could possibly cover all in its entirety--in detail. I suspect that one of the big jobs that we've got to do is to get off this seat-of-the-pants type of operation. I am not making any charges here, I am just indicating that a lot of this whole thing is seat-of-the-pants judgment. Its intuition. What are the real elements that we can use in trying to develop something that will stand up? We know that we've got some big investments here and we know that they've got to stand some pretty severe long-time use. So one of the things that we have got to do involves the general area of criteria development.

What are some of the things we are shooting for, the specific objectives not the broad ones? What is it that we are trying to get at that can influence the physical plan and have a considerable amount of implication in the social and economic aspects of the picture?

If you look at an industry like the automobile manufacturing industry, you will find that they have had some rough experiences over the years. Once in a while we get what we call a "lemon" coming out in a particular model. Now this causes a lot of problems. The manufacturer is okay; there is nothing wrong with the manufacture of that particular unit. But there was something wrong back of that manufacture, something in the design, in the concept, which caused it to turn out to be a lemon. Well, it would a real pity if one out of four or one out of ten, even, of our 1963-model plans turned out to be lemons. And how did the automobile industry get around this particular point? After they have gone through this intensive, rigorous, internal operation, how did they find where they actually had "bugs"? Well they developed some testing mechanisms. They have a proving ground. The question here is whether we can develop, not tomorrow but over a period of time(since we are shooting for extremely long term investments in some of these cases), a proving ground or a testing concept that will check out some of these things before we put them into actual practice.

I'm reminded here of the fact that some of the environmental things that we are talking about don't actually show up on the physical plan. They are not set out as clear cut matters but are interwoven into the whole context of the plan. This makes it a lot more difficult for the planner and the environmental health person to get things incorporated. This is perhaps one of the things that we have ahead of us as "pros" in this field.

I may be stepping on some toes here but I was a little bit concerned with what came to me as a relatively conservative view of what the health powers are in state and local government. Under the American form of government the state and local governments have considerable power in the health field. If it is true that protection of health and welfare is one of the goals of planning and if it is true that both planning and public health have a common ground in terms of a preventive approach, then I say that health powers are being conservatively used relative to the planning process. The health purposes are not being well served. One could argue from a broad philosophical point of view that the conservative use of powers has this point in favor of it in that it retains prestige. But you can argue on the other side that this relatively conservative use tends to make them fall into disuse. I think maybe the people in general are ahead of the pros in this field.

I'll never forget the experience we had about two or three years ago before the House Appropriations Committee, Congressman Fogarty as Chairman. Mark Hollis was testifying and we had had, about two or three months before, some national publicity as a result of some studies that had been done in the field on what we came to call "worms" in the water. Now this was all about some microscopic worms which do occasionally get through the water treatment process. They are very small but they can be seen with the naked eye. Around the country in different places there was a lot of publicity about it. It got in newspaper columns and national magazines picked it up, quoting some of our research people. When Mr. Hollis was testifying this came up and Congressman Fogarty said, "Well now, what about these worms in the water"? Hollis said, "I want to explain, these are not disease producing, they are harmless, they don't cause any disease". Mr. Fogarty asked him some more about them and he said, "Well, yes, they do get through the treatment plants. They are in the mains. And sometimes they even grow in the mains a little bit." The congressman kept on asking him more and more about this thing and Mr. Hollis kept saying that they were harmless and they don't produce any disease. Finally Mr. Fogarty said, "Yes, but are they good for you?" I think this brings out a point here and I suppose the rarest of phenomena perhaps is the over extension of health authority. After 25 or 30 years of working in the health field, I can not remember a case where there has been serious overuse of health authority.

Getting back to A.P.H.A.'s four levels of environmental health -- starting with the prevention of disease and death and moving to the last and final level of creating an environment with a positive health value. I submit that a proper use of health powers, not only by the health people but also by planners, is perhaps what we really are talking about here. And I submit to you as a question whether this may not be one of our objectives.

David Grossman

Professor Leipziger-Pearce's recourse to history reminds me of a phrase that is currently being repeated in Washington: there are no new ideas, there are only people with bad memories.

What I have learned from this conference can be summed up in one word: cooperation. The need for cooperation, the problems confronting cooperation and the means that may be available for cooperation between people in the field of urban planning and people in the field of environmental engineering. This was very nicely illustrated by Mr. Gilbertson's four categories that he suggested as outlining the process that you go through in public health planning. Probably indicating the origins of public health planning in medicine, these have something of a medical flavor to them: fact gathering, diagnosis, prescription, and treatment. There is a striking parallel in four categories that urban planners have been accustomed to use. These are survey, analyze, plan, and program. Fact gathering or survey is the stage at which you find out what it is you are dealing with. Diagnosis or analysis is where you find out what kind of action can be taken or what are the relationships among the facts that you have gathered. Prescription or plan is where you say what it is we should do. Treatment or program is where you get to the point of actually laying out a schedule for going onward and carrying out the proposals developed in the plan.

This parallel indicates the possibility for cooperation in this field. Even though we are using different words, we are approaching much the same kinds of problems from different points of view, although there are different orientations, different concerns, and different starting points giving us some problems to overcome if we are to achieve the kind of cooperation that is essential.

I'd like to suggest that the area for concentration now is in terms of the means for cooperation. These means have got to be developed in many different ways. One way in which we could rank the ways in which the means for cooperation have got to be developed is in terms of the governmental level. Four come to mind immediately. This is local government, metropolitan government (or metropolitan areas since we don't have metropolitan government except in very few instances), the state level, and the federal government level. There are parallel structures in the public health field and the urban planning field that exist at all four of these levels. But they are not nice, neat parallels. They are sort of crooked, jagged parallels. Nevertheless, these parallels are like the rungs of a ladder leading toward progress. I would suggest that this conference is a very good step in building this ladder.

To be argumentative for a moment, I would take issue with Mr. Mocine, although to do so I am going to have to re-state or perhaps overly sharpen the position that I think he was taking. To my mind, planning is a function of government and not of planners. That is to say, planners are basically servants of government and it is the government process that planning is really a part of. Planners as a professional group or public health people as a professional group have one set of interests, a set of techniques, but planning without any adjectives in front of it is really a function of government. And it is through government that these professions have got to make their ideas known. This I think is very fundamental.

I would also disagree with Mr. Cusick in his earlier comment on Mr. Tucker's talk, when he suggested that one of the real needs was for attitude surveys so that we could try to determine the kinds of goals people have. I'd like to suggest that we already have a very well developed and intricate system of attitude surveys that we call elections and that it is through this means that people make their wants known to government. It is not a perfectly operating means. Sometimes it is very difficult to read the meaning of the election, but I think in a democratic society this is the basic attitude survey and the one that we planners and environmental engineers really have to pay attention to.

Lastly, I will have to take issue with Mr. Oppermann who seems to be terribly fond of the metaphor of the cook baking a cake. I would submit to him that we are not baking a cake, we are trying to run a bakery. There is not one cake which comes out as the end product but a continuing series of cakes and rolls and loaves of bread and with the labor and profit motive problems that you have in a bakery. There is a complex of things that you have in running a going enterprise such as government and the urban community. Therefore the concentration on the cake or on the plan may be somewhat mistaken. It is concentration on the operation of the bakery that we ought to have in mind.

Leonard E. Church

I think the history of the housing act certainly indicates that the Government and the Congress of the United States have recognized a growing need for urban planning on a local, regional, and metropolitan basis. The basic Housing Act of 1949 did not incorporate these features into it. We did operate under that Slum Clearance Redevelopment Act for approximately five years until the advent of the Housing Act of 1954 which did, I think, give due recognition to the need for planning. Up to that time we were operating the program somewhat in a vacuum. We were planning small projects, without giving due consideration to the impact of these projects on the entire community so as a result of the Housing Act of 1954, urban planning became a part of our total operation. We have considered this to be one of the most significant aspects of our total activities.

If facts mean anything, you might quote from a little booklet that we have left here on the table which indicates the amounts of planning which has taken place since 1954, as a result of the Housing Act, with direct federal participation. As of September 30, 1961, there were 2025 localities doing some type of planning using Federal grant funds. In 1962 there were 2754 communities involved in some type of community planning, again using Federal grant funds. Obviously, statistics are not entirely meaningful. This does recognize, however, that cities are becoming aware of the need for planning and are doing something about it. This does not indicate of course the quality of this planning. It does not indicate whether or not the plans are really put into effect or whether anything has really been accomplished as a result of these plans.

Now I work for a group of very inquisitive people, namely the Congress. We annually have to go up for our annual appropriations and, being curious groups, these subcommittees like to know just what is being accomplished with this money. Of course we can recite the fact that so many plans have been accomplished and all this. This is not enough for them, they want to know how these plans have been implemented and what results have been accomplished from these plans. So far we don't have too many answers to that question. This is one of our great concerns. We are going to begin to go back to these communities and find out just what they did with the plans for which this money was spent.

Our bread and butter in this program is urban renewal, the clearance and rehabilitation of blighted and slum areas. We've made significant strides in this area. We had assisted some 534 communities at the end of 1961 and 626 at the end of 1962. And this involves over 1000 individual projects in these communities. If anything is significant about these projects I think it is that the specific plans for the execution of these projects are now being tied very closely into the comprehensive plan of the community as a whole, which was not true at one time.

There is not in this country enough trained planners to do this kind of work. I think in this last year, in this particular region, we have had no more than half a dozen trained planners come into the region. We have no schools for training planners in this region. There are some that offer advanced degrees in planning, none that offer undergraduate degrees. I think that this is an area that we have to do a lot of work. You professional people will have to promote planning education.

When I say that I don't want to be controversial, I am not going to discuss the relative merits of who should do planning and who should not do planning, but the facts are that a great many people are doing planning from all levels. Even from the federal level we know that many agencies have money in their budgets for planning purposes. The Bureau of Public Roads may use a certain portion of their money for planning. I found out the other day that the Federal Aviation Agency has money for planning.

Our efforts and our responsibilities in this regard are to insure that there is a cooperative and coordinated effort on the part of all of these agencies, so that we do not have overlapping, so that we don't go off in different directions, and to insure that federal money in particular is not being spent to produce the same thing in the same community. There are many, many technical specialists involved in community development and I think a lot of these have a place in planning. A planner, however, shouldn't, in my opinion, be an expert in all of these fields. Each of the technical professions has a part to play in planning and the planner should very much be that catalytic agent who brings these various groups together in an effort to come forth with a plan which will be designed for this particular community and be most effective.

Corwin Mocine

I would like to react to a couple of the comments that were made by the other speakers. In the first place I can only reply to Mr. Grossman that if I seemed to imply in what I said that planning was not involved in politics and that the planner was not the servant of the politician, I certainly had no such intention. Having been myself director of planning in three very substantial and very lively cities, if I have learned anything in my life, I have learned this. I say very sincerely and very honestly that I have the highest respect for the political leaders of the community. I know that the planner who does not make it his business to understand their needs and desires and, most importantly, to communicate with them without being in any way arrogant or taking on any undue powers, to educate them in the sense of helping them to find out what this particular profession or any profession can do for the community, and to help them to make use of his services, - the person who doesn't do this will not last long or do much if any good for the community.

Let me, in turn, take issue with Mr. Grossman on this cake and bakery analogy. What he said is true, that the whole process is of concern, nevertheless the baker who doesn't worry first and foremost about the quality of his cakes won't have any labor problems or any other kind of problems to worry about. I think the tool that we use for carrying out, for transmitting, for communicating, for measurement and correction in the planning process is the plan. I think we have much to learn about how best to make a plan evident.

I am very much concerned about the planner who says: "We don't care about plans, they always get stuck on the shelf. What we are concerned about is planning." This has the implication that the plan is implicit in any planning. For planning is, after all, the decision on a procedure in order to accomplish a certain end. The person who says, "I don't care about the plan, I just want to do the planning", is really saying, "The plan is in the back of my mind. I know what it is but I am not going to tell anybody else what it is, I will just go ahead to accomplish it". Now I think this is the height of political and public irresponsibility.

I was asked to say a word or two about planning education. It is very true that at the moment we are in a shortage situation as far as training planners is concerned. I don't doubt but that you as environmental engineers can say the same thing. It seems to be true of most of the services that the public service requires these days. The figures that I have on planners indicate that we are turning out from the schools today somewhere in the neighborhood of 250 planners a year and that the requirement, as evidenced by the job hunting service provided by ASPO, is somewhere in the neighborhood of twice that number. This sounds as if it is a rather serious situation. Until World War II there were only two or three planning programs in the U.S. worthy of the name. And most of the planners in my generation have no planning degrees at all. We were trained as architects, as engineers, as landscape architects or geographers or even as attorneys. We found our way into the field and we learned by doing.

In the years since World War II between thirty and forty, I can't keep up with the exact number because it changes by the month, but some thirty responsible programs of planning education have been established in this country. And although we can admit that this is not yet meeting the needs, it seems to me that it is a rather remarkable accomplishment. We could hardly ask that it be pushed much faster than it is being pushed, unless we are willing to weaken the process or dilute it just in order to speed it up.

There seems now to be a fairly general consensus that planning education ought to take place at the graduate level. There are, to my knowledge, only two or three undergraduate programs in the U.S. pretending to turn out professional planners. All the rest provide a master's degree in planning and this seems to be the accepted format. I think there is a lot to be said for this. Everyone who is attempting to deal with a curriculum in planning these days is finding that the time is not enough. There is so much to cover that each program tends to be getting one more year or two more years or something. Now in the face of this, to attempt to provide in four years the kind of human understanding, the kind of liberal education and the kind of expertise that it takes to do this job or any other important professional job seems to me to be unrealistic.

One of the developments in planning education that is comparatively new, I suppose five years ago it didn't exist at all, is the doctoral degree in planning. There are now three or four universities providing a Ph.D. degree in planning. My own institution, the University of California is about to enter into this field in the next year or two. Now this has implications for the field because normally the Ph.D. program is not designed for the professional practice. It is essentially oriented towards education and most importantly, for our purposes here I think, toward research. Everyone of us has said either explicitly or implicitly what we need is more knowledge, more understanding about these emerging problems, about the growing complication of our 20th Century physical environment and the society that uses it. One of the things that I hope we can look for from the universities, especially the ones going in for the advanced degree programs, is really rigorous and at the same time practice-oriented, useful research which will help us to do a better job of planning.

Hugo Leipziger-Pearce

The explanation of Martin Wagner still holds, I believe, that a man who is engaged in planning is like a conductor in an orchestra. Now there are assembled some 20 different specialists in an orchestra, everyone a master at his own art, maybe an artist, maybe a very outstanding man. As part of the team which the orchestra constitutes, he is subordinating his skill to the greater good. The conductor is not the one who is providing the plan. His specific skill is to draw on any one of the specialties with enough understanding of all these skills to mold this thing into an overall performance. What is the plan? Well in the case of an orchestra it is the composition which has to be interpreted by this conductor. In our case, obviously, it isn't a composition.

Paul Oppermann

I am just drawing one conclusion here, that a planner must know the score if he is to make good urban music.

I would like to add a word to what Corwin Mocine said in response to Dave Grossman about the bakery. I was talking about the process whereby the mixing and the blending and harmonizing was applied to flexibly produce a number of different products. This also requires proportioning and timing. Of course the monetary consideration is involved in this too and I think that it belongs in it. I don't think we are very far apart.

One thing I think I got out of Wes Gilbertson's excellent talk was the requirement on the planner to make quite clear that he doesn't arrogate to himself all aspects of planning. This is why I mentioned the qualifying adjective so much. I am not going to apologize for the word comprehensive planning, I think its descriptive. After people get accustomed to knowing what it means, it takes on those connotations and denotations. I think that the general plan is a good term, too. The general plan allows for a lot of specific plans and special plans to be blended and mixed. But I think they have to have their separate quality, too. There are such things as salt and sugar and flour and these are good ingredients. They are good separately but they are even better when they are artistically, scientifically and chemically mixed. I would hope that we would get clearer as we work together. I think a good many of us agree that it is at the operational level that we find out what these proportions are. It is there where we find that, using Dave Grossman's good parallel, between the environmental health person and the planning person you can make connections. But you have also to make connections at the jurisdictional level and you have to make connections at the level where a distinct problem is.

The sanitary engineering department at the state level has certain responsibilities in the counties in our area and every metropolitan area. You get to the point in administration where certain criteria are used by the state sanitary engineer or his man in the field and he says this will pass, this meets our criteria in a minimum sense. But there are some other aspects of this that are directly under the regulation of the county and in some cases the county man doesn't know the same criteria. He isn't confident but the state man goes away with an approval which shouldn't have been given. What he said was that you, Mr. County Man, better see what these criteria are and apply them because you are going to certify that this sewage disposal plant can be installed in this area. I would say where the planner comes in that he ought to be there with both of these men, the state sanitary engineer and the county sanitary engineer. He should say, "Gentlemen, our flood control program does not indicate that this is a good place for your plant. There is a better place and this is it. And our program of approving urban development here is in the unincorporated area of this county which will probably be next to that town over there or maybe incorporated on its own. This would indicate that you are going to have a lot more houses to handle in this area than you have provided for. Therefore you ought to choose a different drainage basin. And our highway program indicates that we are going to have a highway here and that we are going to have some local access roads coming out of the subdivision which we have generally sketched in this area."

This could be quite a long and detailed story. I am thinking of actual circumstances. Instead of having 15 or 20 sewage disposal plants in this area I am thinking of, we have 400 of them and an awful lot of them are no good at all and should never have been approved either by the state or the county. It has happened before the situation got good as it is now. It is good from the planning standpoint now, its beginning to get better in other ways. We've got a metropolitan planning commission as well as a county planning commission in our area. It happens now that we are able to bring together the results of flood hazard mapping programs and of ground water and subsurface facts. We have to reserve land for open space and we've got an open space plan that does this and is being implemented by the county with federal assistance. What I am saying is that this kind of conference, conference after conference over the United States, as many in a year as possible is an absolute need. We are getting into basic action but there is much more to be done. This can be best done if the administrative coordination and the procedures are worked out at the local level with the real difficulties, the real problems, the real opportunities facing us each individually from where we sit. The county health man is doing planning, the municipalities are doing planning. They do engineering planning, they do architectural planning, they do all kinds of planning but let keep clear who is doing what kind of planning. When we sit down together be sure we have all the different kinds of planner each with his proper hat on, each with his own competence of knowing how in the administrative process the job can be done in the public interest more properly, more efficiently.

Hugo Leipziger-Pearce

How do you study the implementation of the plan? How do you improve the degree of implementation of the plan? Given the fact that there is in many cases an increasing diversion between the general plan and the executed urban renewal project, to what extent are you concerned about this dichotomy which exists and which is largely the work of the implementers of the renewal project and not the planners?

Leonard E. Church

I'll try to answer the questions in the best way I can, however much of the methodology for doing some of the things that I suggested has not been developed. As I mentioned we are concerned with plan implementation. Just how we will carry out this activity I am not sure. We have talked about the possibility, for example, of having a man on our staff who will periodically review programs with the state planning agency responsible for carrying out the 701 program for the small communities, checking with them periodically to see what progress has been made locally in carrying out various phases of the plan. This can be accomplished in other ways as by an annual or semi-annual questionnaire which we would send out to all the cities involved asking them what things have been accomplished as a result of the plan. These are just general ideas that we have been kicking around but we haven't as yet formalized any procedure.

Insofar as the plan for specific projects is concerned we have attempted to control this by requiring that the plans for specific urban renewal projects have a period of longevity, usually 20 years. We have built into this thing a provision whereby if at any time the plans are changed after the project has been completed and the federal interest has been finished, these plan changes would have to be approved by our agency. To my knowledge, we have never as yet run into a situation of that type. What we would actually do about it, I am not sure. We would not, I am sure, have any fiscal control over the project activities since we have finished with our end of it.

Wesley E. Gilbertson

I get a little bit concerned about the statement that on one hand this is a dynamic process, one that is ever changing with new conditions of all types, and then the worrying on the other hand that somebody has departed from this. It doesn't quite make sense to me. Some way or other we have got to change. I think here is the real crux of the thing. Whether we are talking about the plan or whether we are talking about the purposes for which we plan, I say these things are going to keep changing and as a result the plan itself is going to change. Maybe in our evaluation process is where we ought to put the stress, namely taking a look at the original objectives and then moving on to some subsequent objectives. See how well we stacked up in terms of the original ones and the later ones. I suspect some of these people had some pretty good reasons for wanting to change. They may not all be good in our opinion, in your opinion, or somebody else's opinion but on the other hand they may be. So here is the real crux, I am glad to see this. This gets into some pretty fundamental studies of what we are really after here. And I think from our point of view, this would be something we would be interested in maybe kicking in a little support on.

Paul Oppermann

I think that Pat Cusick was really going up for grabs at the end there in relation to the housing agency, but I stand between the housing people and Pat Cusick, my friend and colleague, because I think he is putting too much of a burden on the housing agencies and officials in the regions when puts so pointedly the question of, how are the qualities of a community to be determined? Certainly none of us here are going to say that the localities are going to stand still while the federal government determines what our standards will be and I don't think Pat was suggesting that. He was defending high quality at the local level and I am too.

Let's just raise one point here that I think puts in high relief the whole question of how much farther we have to go in this business. I happen to feel that we are just beginning this business. Here's the old phrase we all know, "the highest and best use of land". Now the highest and best use of land for entrepenuer, the private man, who wants to buy the land and who wants to develop it is the most dollars he can get out of the land. Now what is the highest and best use that the planner has? He and any public servant could say the highest and best use of the land is that which helps to make a better environment for all the people, good for business, good for commerce, good for the householder, good for the school people, good for everybody. Who decides? Now we are still in a process whereby the market largely decides. The assessor in city hall, you may not think about him very much, but he is the man who puts down values for tax purposes. The money that comes back at the local level to pay for the public improvements is from that real property tax. He puts it down so that the city, elected officials, and everybody in the city hall can get the maximum return from that land. Now you've got a real wrench in this opposition which I am afraid in the English language ought to be a clear phrase, the highest and best use of land. What is it? Then you start thinking about how you determine it. And how you determine it is a result of a value judgement exercised by the functional groups in the community of which there is always only one. And the elected part of city hall is not so objective and not so scientific about determining these values as is the engineer and the planner and the architect and the lawyer might be.

The community must know what its values are. This is why the planner is putting so much stress on the goals, the policies of the program, and the plan. They ought to come out of the consensus of the community as a whole. Now we aren't going to solve this problem this day or this year or this decade but the issue is joined on what the values of American people are in their communities and how the community plan is to be an instrument, a humble but powerful instrument. Their instrument, that is the important thing. The elected representatives have got to judge this contest in the market place, this contest between the community values as it reflects in the planning program. It comes down very basically to what is the highest and best use of the land.

WORKSHOP - HOUSING

J. Elmore Hudson, HHFA

What we would like to do is explain briefly some of the aids we have to offer the cities or agencies in the field. One was discussed yesterday by David Grossman, the Community Renewal Program, of which he stated, nationally, we have 80 cities involved, and in Region 5 we have 14. The Community Renewal Program comes under the heading of Special Programs in the Regional Office. There are several other programs. The 701 is the Urban Planning Assistance Program. Of course, we have Urban Renewal as such. And we have one other, the Open Space Land Program. When you go back to your respective cities, I think that is one you can use since it is connected with planning and environmental health. Can you think of anything else better than to have parks and recreational areas? I cannot.

Speaking about my own city of Dallas, they have stuff stacked up there to where it looks like a bunch of totem poles. They are sadly needing parks and open space areas. They had a very good chance a few years ago with their library to move out and make a really nice Civic Center, but politics got into it and they located the library beside the old place. My point is, that if there were parks and open space in the downtown area, the people who work in the offices downtown could go out at noon and sit in the park in the shade of the trees. Open space can do a lot. If the cities throughout our region, or throughout the nation, knew the advantages that are theirs in the Open Space Program, and understood it, I think they would take advantage of it.

I would like to briefly explain to you what is meant by the Open Space Program, because President Kennedy gave it great emphasis. We have a fact sheet, and briefly I am going to give you five questions. Question No. 1. What is Open Space Land? Question No. 2. Who may apply for Open Space Land? Question No. 3. What are the requirements for obtaining the grant? It is a grant program, an aid to help the city. Question No. 4. What are the matching arrangements? Question No. 5. What can be acquired with the grant funds or the money the city gets?

Answering Question No. 1, under Title 7, Open Space Land is undeveloped, or predominantly undeveloped land, in urban areas, used for recreational, conservation, historic, or scenic matters. I think that covers it, as farming doesn't come under Open Space Land. The Government will furnish to the city up to 20% of the money required to buy this Open Space Land, and once they get it, it has to show on the application that it is for one of these five uses.

Question No. 2, who may apply for it? Any state, regional, metropolitan, county, municipal, or other public body which has authority, by state or local law, to contract with the Federal Government. There are three things under that: (1) have the authority to acquire title to, or other permanent interest in, the Open Space Land; (2) have the authority to contract with the Federal Government to receive and spend the fund; and (3) have the ability to provide the non-Federal portion of the cost. We have stated they can get up to 20%, and in some cases 30%, but they do have to show they have the balance.

Now, what are the requirements for obtaining grants? There are always some strings. They aren't going to just give you a blank check. The one thing the city must show is that they have a general or master plan. If the city has a general, a comprehensive, or a master plan, they show they have given consideration to parks and open space land. That is the only requirement the city must fulfill to make application for a grant for Open Space Land.

What are the matching arrangements? The Federal grant to an eligible public body may not exceed 20%. I mentioned in some cases it can go 30%, and that would be for an urban area as a whole, or for a substantial portion of an urban area pursuant to an interstate compact or agreement. Suppose Grand Prairie and Dallas decided to go together on this thing. One city designates the other to make the application, then they in turn can combine forces, and they have the authority to contract. In that case, if they show they have the authority to go outside the city limits into the urban area and purchase land, then they can get up to 30%.

What can be acquired with the grant fund? The Open Space Land grant applies only to the cost of acquiring title to the land. This means that you cannot use the money you get for any improvements on the land, but only to acquire title to it. In one place they bought a 9-hole golf course in or near the city, and the club wanted to go further out and build an 18-hole course. What a wonderful chance that was to get this and retain it as recreational. Well, they had their club house but they were not improving and could acquire it on that basis. But the whole area must be retained as open space. Of course, there are certain limitations under certain conditions. Several years from now they may get a release to re-use that land, but it must be primarily for open space. If the city has an idea they want to do this, they can take option on the land, but don't take title to it until the application is approved. The purpose of the grant is to acquire title to the land. I think this is one of the best programs. I have seen in other cities throughout the world what they have done over the centuries to retain this open space. They are far ahead of us and you just have to visit these places to know what it means. I guess New York's Central Park is one of the examples, and there are other places in the East that do have some of these, but certainly down here, we are sadly lacking. I think this is one of the programs we should go back and let the city know about. There is plenty of money. I had word from Washington last week that they have money for this Open Space Program, and would certainly like to do something about it. They figure it is an excellent program to do something about the environmental life of the people in the city.

George Simmons, HHFA

I notice this workshop session on housing appears to be getting onto an explanation of some of the Federal aids available. I think we ought to look at this thing partly from the housing point of view, and show its relationship to these different programs. I think Elmore has indicated that the Open Space Land Program relates to housing, and that it provides better living environments as a whole. It provides space for recreation uses to satisfy the needs of the people, and to get back to planning, to make our future cities more livable. I think that is the biggest competing problem we have among cities. This is a mobile age and people can be here today and there tomorrow, and go quicker than that by plane, and we don't know what the rockets are going to bring us. So it is up to the cities to retain people, if they are going to live in cities, by making the cities livable. With more and more people finding cities a place to live, this environmental planning, call it health planning or whatever you will, is really planning for cities' livability, not only from an economic point of view, but for daily, hour to hour, enjoyment of life. We need to consider the housing environment as one element of the overall picture.

The 701 program which I am primarily interested in, having to review applications, provides the opportunity for cities under 50,000 population to receive a two-thirds grant to help them prepare a comprehensive general plan. This is administered through the state planning agency in each state. All eight states of our region have this type of state planning agency: in Texas, the State Health Department is the state planning agency; in Oklahoma, it is the Department of Commerce and Industry; in Arkansas, the University of Arkansas; and in Louisiana, the Department of Public Works. Any city or area over 50,000 population must be under a metropolitan or regional planning agency. The metropolitan planning agency, as we have in Wichita, Kansas, can apply directly to HHFA for a two-thirds grant to help out on metropolitan area planning problems and to prepare an overall plan for the entire urban area. The 701 funds are not available to cities in these areas over 50,000, but they are available for this whole comprehensive planning approach.

Another facet which has been added to the 701 program is statewide comprehensive planning, and this program is just getting underway in this region. New Mexico is starting in on a phase basis and getting ready to start gathering the basic data as the first step in working on an overall state program. The State of Kansas is trying to work on a region basis. The State of Colorado is just beginning to organize the State Planning Program. Louisiana is meeting next week to discuss a long-range program for planning. The reason is that the small cities and metropolitan areas, when they prepare a plan, have to consider the rest of the state; where the highways are going, where the Bureau of Public Roads and the national highway system fits in, and find out the airport plans. These are part of the national picture and are not just a local problem any more. So all these things are inter-related, and in getting this coordination and cooperation we are finding planning at many different levels. Each one has its place and function, but at the same time they are all inter-related. The 701 Program has been outlined in a few bulletins. The Law is available, and there are copies if any of you would like copies. A fact sheet is available on the general functions of the Program. In this region, all eight states have been receiving aid under the 701 Program since 1955 or 1956, and each year they seem to be increasing slightly. The trend at this moment is toward more statewide planning. Just how this is going to effect the housing environment is going to be real interesting.

Getting back to local city planning, a housing environment is planned for in the comprehensive plan by the designation of areas for different densities of housing; single family, multi-family, etc. The density of the different housing areas is a basis for zoning, and zoning regulations control the densities in the different housing code which tends to regulate the density and use of housing to make sure that there are standard livable structures that the people are living in, and the other is the building code which affects the kind of building that the family lives in. Before the house is built we have the subdivision regulation, and this again is a method of controlling the environment to make neighborhoods more livable. Sub-division regulations alone don't do the job, it is the comprehensive plan that tells the developer what is the best area of the community for a housing development. When they are going to subdivide a large area, the comprehensive plan delegates parks and recreation space, school space, and the community facilities that make a neighborhood that you are going to want to spend your life in, or have your family raised in and look back at as a place they call home. Otherwise it can be just a stopover place on this mad world that people are on with its wheels and wings by which we are flitting from city to city, area to area, and state to state. Approximately one out of every five or six families moves every year, and when it comes to housing development and planning, we have these factors to consider.

Francis A. Jacocks, PHS

I would like to say first that we do not have an ongoing program in the Public Health Service, at the present time, on housing. We are considering this and we are considering two phases. The APHA Appraisal, or measure of quality in a house is a mechanism which is utilized throughout the nation, and is a very excellent way of ascertaining quality. It is being used by HHFA in a lot of areas to ascertain what the future of a house should be, whether it should be demolished, renewed, renovated, or whatever. The Public Health Service has been given the copyrights to the APHA method of appraisal. We are interested in the training aspects of this and have two schools at the present time that are training people in this method. The other area we have a great interest in is a minimum housing standard. That is assuring a person a livable structure and you recognize there is one little difference and that is economy. We are trying to get the structure itself in such condition that it will be livable. We do have quite a bit of this work going on in the Public Health Service, and of course we feel this is a role that the Public Health Service should assume.

WORKSHOP - AIR POLLUTION AND RADIOLOGICAL HEALTH

AIR POLLUTION

Prevention of air pollution is generally easier than the cure, but is not given enough consideration by most cities. Logical systems of industrial location are needed that will preserve the cultural characteristics of the community as well as insure clean air.

Air shed planning must be based on the most frequently occurring meteorological conditions. An accurate resume of needed weather information is obtainable in most areas from the Weather Bureau or consulting meteorologists. To this data the planner adds present pollution sources and baseline data on the local air shed pollution load. Consideration can then be given to the location of future industries and formation of a framework in which local government can handle air pollution problems.

A complete solution is not readily available to most air pollution problems as in the case of water where the community supply intake is placed upstream and the treated-sewage outfall downstream. This lack of a complete solution, due to varied weather conditions, makes it more difficult to sell an air pollution prevention plan to a planning board or the general public.

RADIOLOGICAL HEALTH

By 1968, nuclear fission is expected to be a competitive source of electrical power in high-cost fuel areas. When nuclear reactors become economically competitive, many more can be expected to be built. One problem is that of site location. The economics of electric power transmission favor sites close to population centers, whereas factors of safety and the cost of containment vessels favor sites far from population. Sites for nuclear power plants now appear plentiful in our open countryside, but these must be set aside now. Who knows where our open countryside will be in forty years when our population has doubled?

Austin presents an additional problem in reactor site location. If the reactor is upstream, the river will carry any contaminants entering the atmosphere will most probably be carried over the town by winds.

Many large water treatment plants are establishing systems of

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continuous monitoring to detect any gross radioactivity and its fluctuations in the water from fallout and other sources. This is to be encouraged as are studies such as that of the Texas Water Pollution Division to obtain background radiation levels on all surface waters.

Treatment of water supplies is a line of defense against radioactive contamination. Sedimentation, filtration, and the time involved can aid in decreasing the radioactivity in the water entering the community mains.

WORKSHOP - SEWERAGE AND REFUSE PROBLEMS

SEWERAGE PROBLEMS

The widespread installation of septic tanks in suburban developments is a major problem, particularly if the lots are small and also contain a water well. Depending upon the type of soil present, a two acre lot is usually required for the proper leaching of septic tank effluent. The septic tank was originally designed for farm homes, but a two-acre lot is too small to farm and too big to mow. A two-acre plot of ground is economically unfeasible for the average home owner. The major concern is with the small lot where the average suburbanite lives. The builder installs a septic tank on a small lot and soon the sewage comes to the top of the ground or to a drainage ditch where the children are out wading in it. A high rate of hepatitis is the usual result.

The Public Health Service has a "Septic Tank Manual", the essence of which is incorporated in FHA housing standards. By seeing how long it takes water to disappear from a hole, the soil porosity is estimated. The footage of leaching pipe can then be calculated. The problem is that the cumulative effect is not considered over a large area. Turning the handle here and turning the spigot there can result in 40 acres of spongy soil. The cumulative effect also adds to the pollution of the ground water supply.

One solution might be to require the developer to install dead sewers in line with a master plan for the drainage basin. Dead sewers would be small collector systems not yet in use. When the public decides they have enough money, they can have the trunk or interceptor sewer built to their area and connect onto it. This might well hurry the connection into a sewage treatment plant, but using the septic tank for even a shorter time still burdens the property owner with paying for two systems.

The idea is sometimes overly stressed to extend a thirty inch main to an area as soon as possible. It may be better to have a small interim plant serving a specific area and to do away with it eventually rather than have none at all and have the problems of septic tanks.

If an interim treatment plant is to be used, what kind of plant do you build and who will maintain it? Who is responsible for its development? It might be as well to have septic tank effluent on top of the ground as to have the sewage going down to the treatment plant and then running down the creek in back of the lots in a raw state. Possibly the state should designate someone as responsible for the operation and maintenance of small plants. In some areas companies are going into the business of operating these small treatment plants.

There are many conflicting municipal corporations, water improvement districts, and simply urbanized areas where builders have gone out and started building. The people in these areas need services and they want inside plumbing, but there are no adequate controls. Possibly the problem lies in the need for enabling legislation. Areas may need metropolitan utility districts that overlap county boundaries. For the plans to be effected in any area, there is needed a stronger interest in coordination of planning on the local level.

How much control can be placed on the use of land? A problem is not really public until it creates a nuisance off the lot. There is a definite question as to when health and sanitation regulations can tell a person he can't use his land a certain way. Although it is difficult to do, court cases have shown that, through enabling legislation, a community planning board can have the authority to accept or reject subdivisions.

The reluctance to furnish more legislation for health departments may be because they haven't been strong enough in their enforcement of current laws. Most health officers have broad implied powers if they care to use them, but they usually prefer to have them specifically spelled out. A further legislative problem is that most state legislatures are rurally dominated and it is difficult to get them interested in metropolitan problems. What is needed in many cases may not be new legislation but the courage to enforce what we now have available.

REFUSE PROBLEMS

In metropolitan areas land is very expensive. It is getting more and more difficult to find suitable land within an economically feasible hauling distance for a sanitary landfill. There are problems with incineration--high initial cost, lack of complete combustion, air pollution, and you still have to find a landfill in which to put the noncombustible waste. Many places across the country have gone to transfer hauling to take the refuse long distances. This costs money, but so does all of refuse collection and disposal.

A community doesn't like to spend its money on trash. They would rather have a super highway or a civic center. Cities must face up to their problems and provide the most economical and satisfactory means of refuse disposal. They must also recognize that this is going to cost them money.

Small communities of 500 or even 10,000 people have a particular problem in the disposal of refuse because they can't afford to keep a tractor on a landfill. The economical solution may be to have a number of nearby communities create one well operated disposal area. Something must also be done to provide proper service to the unincorporated areas around the municipalities. It might be well to go beyond the jurisdiction of the city and work within a metropolitan concept. Cities have only limited extra-territorial powers and beyond that point are out of business. The county, therefore, is being brought into the refuse business in many cases.

As with other problems, refuse disposal evolves back to fundamental amenities which depend on what the local people want within an area. Any necessary legislation is at the command of the people.

Basic and applied research is in order to solve many of our problems. Lately much research has become a tool to finance higher education and graduate programs. Much of our research is therefore being done by untrained students. We need research which does more than say this is a great problem for which we need more research.

COMPREHENSIVE PLANNING

Marvin R. Springer

The title assigned to this discussion is not very definitive in that the term "Comprehensive Planning" is subject to quite broad interpretation. Perhaps if I have any complaint about the use of the term, it is generally that in application, the term "Comprehensive" means -- large in scope, including much and having the power of full understanding. As applied to physical urban planning, the significance of the word "Comprehensive" has been constantly broadening as the complexity of urban development increases. Time also has tended to change the meaning of the term. What might have been considered comprehensive planning yesterday may no longer qualify today because of changing conditions and concepts. Despite my apparent quibbling over the use of the term "Comprehensive Planning", I am pleased that it is planning and not plan. The process of comprehensive planning is, I think, much more important than the plan. The plan is merely a consolidated record of the planning process at any given time--the process should be a continuing one. In fact, today it has become fashionable to use the term "continuing comprehensive planning process". Just such a term appears in the provisions of the Federal Aid Highway Act of 1962 in reference to transportation planning. By these comments, I do not mean to belittle the importance of a community plan which is the product of comprehensive planning, but rather to emphasize the basic significance and importance of the process.

No plan, however wise or however carefully prepared, is likely to have lasting importance to a community or to be carried to any reasonable state of fruition, unless it represents the composite desires and objectives of the community. These desires may or may not coincide entirely with the planners' thinking, but from the planning process there must evolve some basic agreement on the goals, objectives and scope of the community's efforts. The first element of comprehensiveness should, therefore, enter the planning process at the very inception of the planning effort. We might refer to this stage as being that of comprehensive organization.

If one examines the process of community building, he will find that many individuals and groups are involved. The physical community in the form of streets, utilities, homes, shops, industries, schools, churches, parks and all the other facilities which make up the physical city result from the efforts of many.

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The developer who subdivides land for housing or industry, the contractor who builds a house or an office building, the city when it paves a street or lays a water or sewer line, the private utility that expands its services, the congregation when it builds a new church or the school board when it adds a new building--all these and more contribute to the building of the community. If our planning is to be comprehensive in its organization, a substantial cross-section of the community builders and leaders must become involved at an early date.

The method by which the community leaders and builders are made part of the planning process will vary from city to city. In one city, a formal advisory committee may be proper, in another, a loose arrangement of conferences may suffice. In a large city, a regular organization professionally staffed, such as the Philadelphia Citizen's Council on City Planning may be appropriate. Regardless of the manner in which the broad cross-section of the community is made a part of the planning process, the achievement of such a comprehensive approach is essential. I do not subscribe to the philosophy that plans are made and then sold to the community. One isn't sold something he had a part in formulating, it already includes part of him. The planning process involves formulating ideas and goals, not selling them.

The second element of comprehensiveness involves the geographic area of planning concern. It is perhaps in this realm that the greatest difficulty arises in achieving the objective of comprehensiveness. The processes of urbanization today have become so complex and far-reaching, that it is difficult in any given case to fully determine the proper planning area. Even when a reasonably comprehensive determination of the planning area can be made, the opportunity to plan for the total area is usually curtailed by a conflict of political jurisdictions which may involve not only cities but school districts, special districts, counties, states and even nations. The greatest problems involving lack of comprehensiveness in an area usually arise in the individual communities which are part of larger metropolitan areas or urban regions. Unless an active metropolitan or regional planning agency exists to provide a broad background to the individual community's position in the order of things related to the entire region, comprehensiveness as to area will be lacking in the planning effort. Some of the greatest errors as to scale and content of planning are likely to occur when there is serious restriction in the area of planning concern.

Decisions made concerning the traffic potential of a major thoroughfare which has its origin or terminus in another community cannot be realistic without considering the impact of the other community and its growth potential. Decisions concerning the location of a sewage disposal plant made in considation of a single community in a metropolitan complex are almost always short-range and faulty.

Perhaps the greatest source of error in establishing the scale of any planning effort arises when it is not possible to take into consideration the relationship of a community to an entire urban region of which it is a part. Sometimes regional influences are very broad and subtle. In Texas today, there are a number of these broad and subtle factors influencing urbanization. The NASA developments on the Gulf Coast and the Graduate Research Center north of Dallas are examples of these factors. The composite of these broad influences promises to create a major reshuffling of the state's urban population. The mere proximity of a community to such activities may create an entirely revolutionary set of circumstances affecting growth or even causing decline. Decisions made without full consideration of such factors are almost certain to be faulty.

Comprehensiveness as to area is an increasingly significant factor in planning and the broader the area base over which the planning considerations extend, the greater validity the proposals are likely to have. In Texas where we lack legislation for broad area planning, we must be particularly concerned about area comprehensiveness in our planning.

An important example of the need for a comprehensive area approach related to health activity is found in the control of atmospheric contaminants. Air pollution control by one or a few cities in a large metropolitan area can be meaningless. Such a problem must be attacked in a broad area basis to be successful. At the same time, the industrial zoning performance standards for air contaminants in a single community can appropriately be created within the framework of a broad area control. The mention of performance standards brings up a host of technical problems related to such items as sound and smell which involve the disciplines such as chemistry and physics which introduces the next element of comprehensiveness.

The third area of comprehensiveness to be considered in the planning process, involves the technical skills that are usually appropriate in the preparation of the plan and the research related thereto. The complexity of our urban development requires the application of many skills to the planning process. The planner actually becomes a generalist rather than a specialist in that to be comprehensive, he must utilize the training and skill of the economist, engineer, architect, landscape architect, chemist, physicist, attorney, sociologist, student of government, finance and real estate specialist and a multitude of other skills and professions covering the full spectrum of physical and human problems related to our living together in an urban environment. Bringing together the proper knowledge, skills and judgement to have the power of full understanding and to achieve comprehensive solutions to the planning problems is an essential and important part of the planning function. Thus comprehensive planning involves the comprehensive mustering of a broad range of technical and professional skills.

The fourth element of comprehensiveness in the planning process involves the specific elements of planning concern or the subject matter itself. Here again, the broad approach is essential. Generally speaking, the only function of government today which is concerned with the whole picture, the whole city, or the whole urban area, is the planning process. As our system of local, or for that matter even national government, has evolved, it has become more and more a series of specialized and often unrelated jurisdictions, each interested and responsible for a specific fragment of the whole governmental structure. The city water department customarily pursues its responsibility of supplying a safe and adequate amount of water to the community without concern for the highway and thoroughfare system which may be the responsibility of the public works department. All of us have seen freshly surfaced streets torn up to lay a water or sewer line or even a traffic control conduit, because there was no one looking after the whole picture when decisions concerning such investments were made.

To some degree, therefore, the planning process should concern itself with the whole community structure and the elements of this total structure include:

1. People

   To a considerable degree, the characteristics of the people determine the nature of the community. The age, educational and income level of the population are significant factors. Of these, the educational level is likely to prove most significant factors. Of these, the educational level is likely to prove most significant in the future.

2. Economics

   The sources of wealth, employment and resources which provide the economic base of the community are of importance. Whether the economy of a community predominantly involves the exploiting of a natural resource, such as petroleum in West Texas or agriculture as in the Panhandle or people as in the case of some large industrial or service centers, the source of wealth and employment must be part of the planning consideration. Perhaps the most significant of urban economic resources is the human resource in the form of brains, skills and customers. In the technological computer age we are in, human resources are likely to be the most important factor in a community's future.

3. Physical Facilities

The area of greatest emphasis by planners includes the streets, land, buildings, utilities, parks, institutions and natural endowments which influence a community's environment. Much of the planners' efforts involve the physical facilities--their location, scale, relationship and function. These physical facilities are the product of the effort of many and the purpose of planning, as intended here, is to give order, meaning and value to the multitudinous efforts of the people and groups involved in building and maintaining the urban environment.

In a broad sense community planning (on whatever scale) should be a process for guiding and coordinating the numerous efforts, both public and private, toward the development or redevelopment of an orderly community which contains lasting amenities and which provides a good environment for living, working, rearing a family and for personal development. To guide the development of the physical environment of a community, all physical facilities of an area must be the concern of the Comprehensive Planning Effort.

In his concern about all the physical elements of a community, the planner is often looked upon as a meddler. I have had such experience even with local health officials. Without exception, I have found that the agency or person who objects to looking at his role or function in relation to the whole community has failed somewhere in his responsibility to the whole community. Fortunately, such attitudes are tending to disappear and there is greater recognition of the need to look at the whole community.

4. Regulatory Processes

Inasmuch as the comprehensive planning process involves largely a guiding and goal establishing function, the regulatory tools of the community are involved. Some of the regulatory processes are the primary tools of the planner and these include:

a. Zoning and land use controls.
b. Land subdivision and development regulations.
c. Maintenance regulations such as housing codes.
d. Special development regulations related to traffic facilities, highway access, transportation routing and similar regulations.

The planner is also concerned with the coordination of other regulatory measures as they influence the physical community.

Many of such measures are the responsibility of other agencies but require the help of the planner to fit into the whole. To be comprehensive, the planning process must include a consideration of all regulatory measures.

5. Coordination with Various Governmental Agencies

The broad range of local, state, and federal agencies and even public and private groups who have an interest and play a role in creating an urban environment, call for the broadest type of consideration and evaluation. The range of problems of governmental coordination may include any or all of the following: county agencies such as the county health department, the county highway department, the state highway department, the Bureau of Public Roads, health departments on a state level or even federal level, the Bureau of Reclamation, the Corps of Engineers, and all their activities in building reservoirs and stream and harbor improvements, the military services, perhaps the fire insurance bureaus, the state, the school boards, HHFA, the Soil Conservation Service, the colleges and universities both public and private, authorities such as river authorities, port authorities, or transportation authorities, aviation agencies, special districts, park districts, park agencies, the forest service. Actually the only significance to this list is that it has omitted far more than it has listed. There has been an increasing tendency at both state and federal level to coordinate the individual agencies efforts towards the local community. This effort is most encouraging and certainly helps a frustrated planner if he attempts to look at the whole picture in his planning process.

6. Local Administrative Procedures

To be effective, the planning process must become part of the day to day function of decision-making. This means that the data, research, recommendations and goals of the comprehensive planning process must be available to all levels of government and to the private decision makers as well. This requirement places the planner in an aquarium-like environment where his entire efforts must be open to view. It has been my experience that once the decision makers find that they can rely on the planner's efforts, a heavy burden of responsibility falls upon him.

To be comprehensive, the planning process must enter into the decision making realm even though at times the decisions may seem a little disappointing to the planner.

7. Continuity

The final element of comprehensiveness which will be mentioned is continuity in the planning process. Planning cannot be broad in its scope unless it has ability to adapt to change and remain comprehensive against the background of time. One of the problems which the 701 Program is struggling with is the maintenance of comprehensiveness of the effort against the background of time and change.

Certainly the scope of comprehensiveness which has been described covers a multitude of things and is almost frightening in its nature. Unless, however, we can master the problem of looking at the whole, and continue to pursue truly comprehensive planning as it has been generally outlined here, it is not likely that our planning efforts will result in more than fragmentary corrections here and there, and such efforts against the background of time and experience are liable to prove faulty.

EVALUATION OF THE COMPREHENSIVE CITY PLAN

Homer A. Hunter
Presented by - Sam G. McKenzie

In the simplest possible terms, the Comprehensive City Plan contains two major groups of ideas. The first group relates to the use of land in the city and the second group of ideas pertain to services to the various areas of the city and to the users of the land.

The use of land idea includes planning for the most economical and efficient use of all land in the area of jurisdiction of the city. This involves zoning, land use regulations, and traffic movement and control as well as the many other matters closely related to planning for the best land use. This is largely an enforcement procedure and becomes effective after the preparation of all necessary land use studies, zoning and land subdivision regulations.

The planning for services to be provided to the various areas of the city and the users of land includes planning for all services which the city furnishes to its people and usually involves municipally owned utility services, drainage and flood protection, public schools, parks and recreation facilities, streets and thoroughfares, and police and fire protection service. All of these services and any others that the city may furnish require expenditures of public funds for the required physical facilities as well as for operation and maintenance of the services.

Many facets of the two basic ideas of planning for the use of land and providing services have been very capably discussed by prominent speakers during the two days of this First Seminar on Urban Planning for Environmental Health and other speakers have discussed the formulation of the total comprehensive plan. The subject of "Evaluation of the Comprehensive City Plan" suggests an attempt to arrive at a correct judgement of the worth of a Comprehensive City Plan in other terms than those of money.

Since cities are for people and planning is a means of providing a decent, safe, healthful environment in which people may live and work, it would appear that an evaluation of a plan might suggest a determination of whether or not the people of a community are healthy, happy and content with their homes and

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community opportunities and surroundings. Such a determination would be almost impossible of accomplishment.

Comprehensive planning for the larger cities in the United States has been done for many years. However, only very recently - perhaps within the last five or six years - have the small and medium size cities gone into extensive planning programs. This has become necessary because of explosive growth situations in some of the smaller cities and because of competition for growth between cities. Planning has also been found desirable in some cities simply as a means of survival.

The continuing decline in rural population requires cities that have depended upon rural trade for support to be more alert and aggressive to industrial development and other opportunities. Declining rural trade leaves a void that must be filled from some source or the rural community may soon find itself dead.

With the shifting population in the United States, people will gradually seek out the more pleasant and more healthful environment in which to live and raise their families. These more pleasant living areas will be in the small to medium size cities where proper municipal services are furnished economically and where people may be provided with plenty of open space, fresh air and sunshine. The small and middle sized community should prove to be much more attractive in many respects than the large metropolis; particularly as a place for people to live and raise their families. People want good schools, quiet residential neighborhoods, adequate recreational opportunities, and convenient shopping facilities. These are available only in the smaller cities.

Many industries are having increasing difficulties in large centers of population because of traffic congestion, high taxes, and growing costs of operation. The energy and health of the workers are reduced by excessive travel and poor living conditions with resulting lower productive capacity. If a worker has to travel long distances through heavy traffic, he is in a bad frame of mind when he gets to work and this will lower his production efficiency. Industries are seeking locations where their workers can live happy and pleasant lives in peaceful surroundings and many of them are moving to smaller communities.

The larger cities will, of course, continue to serve their purpose but extensive remodeling to meet new conditions of good living is too formidable and expensive to be undertaken in most areas. The large centers of population will continue to be distribution and shipping points and wholesale trade centers. However, at this time the small and medium size towns are much more attractive for people to live in than are the large centers of population. There is an ever growing challenge to the small city to provide the facilities and the convenience which people

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Planning seeks to upgrade the community and make it more attractive for industry as well as a more attractive place for people to live. If one community engages upon a planning program and accomplishes the objectives of planning, then its neighbor must also follow the pattern in order to stay in the competition for industry and people. This competition for people is not necessarily a competition to get more people to move into the city but it may be a competition to keep the people who already live there. Younger people are going to make new families and settle where the opportunities are best for earning a living and if this opportunity is not present in the "old home town", then they will move away to a neighboring city where such opportunities can be found.

In very rapid growth situations, planning is an absolute necessity in order to provide desirable control measures and to make it possible to furnish services that a city must furnish to its people and to furnish these services at a reasonable cost. Perhaps the most outstanding example of an explosive growth situation in Texas is the City of Mesquite which lies immediately to the east of Dallas. Here, planning has certainly been essential and it has paid handsome dividends to the people.

In 1950, Mesquite had a population of 1,696 people and the area of the city was less than one square mile. By 1962, Mesquite had grown to a population of 37,872 and covered an area in excess of 21 square miles. Partial planning was carried on during the 1950-60 period and a complete comprehensive plan was prepared during 1960-61. This comprehensive plan was completed late in 1961 and included a five year public improvements program proposed for the years 1962-66 inclusive.

The plan suggested the issuance of $5,700,000 in Water and Sewer Revenue Bonds; $7,619,000 in General Obligation Bonds for Municipal Buildings, Parks and Recreation, and Streets and Drainage; and, the assessment of $1,734,500 of paving costs against benefited property. The entire five year program will aggregate $15,053,500 and with careful project scheduling and finance planning the entire five year program can be accomplished with no adjustment in the ad-valorem tax structure and no increase in utility rates.

This proposed program was presented to the people in a series of mass meetings immediately after completion of the Comprehensive Plan and in December 1961 the voters approved the entire program through a bond election. The approval of the bonds by a majority of more than two to one was a good indication that the people of the City were at least reasonably well pleased with the total comprehensive planning program.

The detailed capital improvements plan is being used as a guide for project construction and detailed engineering planning. Excellent progress is being made on the numerous projects scheduled and substantially all 1962 projects are completed and planning is well along on projects to be done in 1963. The following progress summary is interesting to indicate that the plan is actually being followed:

Water and Sanitary Sewer - All projects scheduled for 1962 completed except for one small sanitary sewer project held up by a right-of-way problem. One project scheduled for 1963 has been completed, plans are completed for one, surveys are under way on two, and right-of-way acquisition is under way on one. All 1963 projects will be completed as scheduled.

Municipal Buildings - All projects scheduled for 1962 are completed. Plans are completed for one 1963 project, plans are in progress for another and the architect has been employed for one project scheduled for 1964.

Parks and Recreation - Of the 14 projects scheduled, 12 have been completed or are in progress. Two swimming pools scheduled for 1963 will be completed and ready for use during the summer of this year and some progress has been made on land acquisition for two other 1963 projects.

Street Improvements - Of the 24 projects scheduled for 1962, 16 are completed or under construction, 7 are held up for lack of property owner participation and on only one small project has no progress been made. For the 1963 program, three projects have been completed ahead of schedule, plans are in progress on 7 projects, 9 projects depend upon property owner participation and one project has been postponed to some later date when development in the area justifies the construction. One large project scheduled for 1966 has been advanced to 1963 because an industrial development in the area requires the project to be done at this time.

It is noted in the progress summary that there has been some minor adjustment in project priority and this is an advantage in comprehensive planning. One area may develop more rapidly than forecast while in another growth may be retarded and project schedules should be constantly under review so that available funds are used to the greatest advantage.

During the year since the Mesquite Comprehensive Plan was completed, the Planning Board and the City Council have made careful and effective use of the future suggested land use plan and the detailed neighborhood planning studies. All subdivision platting is required to follow the plan and zoning changes are permitted only when such changes generally conform to the long-range pattern for development. The Mesquite Plan is being followed in all essential details and it is serving the purpose for which it was prepared. Therefore, an evaluation of this particular Comprehensive Plan indicates that it is of material aid in helping in the orderly development of the city in a sound manner and the people generally approve of the way the program is being carried out.

When work first started on the Mesquite Comprehensive Plan, a questionnaire was sent out to all taxpayers in the city asking their ideas of things that would improve the community. Response to the questionnaire was exceptionally good and many ideas expressed by the people were carried into the planning program. In replies to the questionnaire, approximately 70 percent of the people indicated that they would not leave Mesquite if they needed a larger or better home. This is a definite measure of the fact that at least a majority of the people are happy with the opportunities and living conditions afforded by the city.

The success of the operation of the City of Mesquite and the functioning of the Comprehensive Plan is probably due largely to two major factors. The first is that the City Council, City Manager George R. Schrader and the City Administrative Staff are aggressive, hard working young men who are vitally concerned with the orderly growth and progress of the community and have the wisdom and foresight to plan for the future and to implement the planning with the most efficient operation possible. The City Manager and his staff carry on a continuing public relations program and most of the people are advised of the activities of the city government. The second vital factor in making the Comprehensive Plan worth while is that it was carefully and painstakingly prepared and was then made an important tool in daily operation of the city. It is a constant reference for progress and is used continually as a guide for city development. The City Administrative Staff has continued to make use of the planning consultant's services as advisers in interpretation and administration of the Comprehensive Plan and this has been an important factor in the functioning of the plan.

The evaluation of the Comprehensive City Plan for Mesquite, therefore, indicates that it is a vital force in the day to day operation of the city; that the people of the city are reasonably happy and contented; and, that capital improvements are being provided in a sound manner and at a reasonable cost to the people.

A comprehensive plan has value only if it is a useful instrument in guiding the growth and development of a community. A "dusty" comprehensive plan has no value. It must be a living and vital force if it is to serve its purpose and have true value to the community. It must be practical and possible of accomplishment in order to have true meaning. The real value of a comprehensive city plan can be measured only by its usefulness as a guide to sound and practical community development.

SUMMATION AND CLOSING REMARKS

Patrick J. Cusick

Let me take you back to the past for a moment and recall to you one of the luxuries of antiquity at a time when the population on this planet was a modest fraction of what it is today and when, consequently, space was not at as much of a premium. It was, I understand, the custom in any type of settlement to dispose of the refuse and debris generated by the community a convenient walking distance downwind from the town. In the course of time these dumping areas grew in size and spread closer to the community. Eventually the many disagreeable and hazardous aspects resulted in the abandonment of that settlement and a movement to a new location. Now, all of this took place in a comparatively unenlightened, at least by today's standards, barbaric age. By the crude cost-benefits standards of those days it was cheaper for the citizens of those communities to abandon them and to move to a new location than to undertake the steps necessary to assure themselves of a continuously healthy environment.

What was possible in past civilization is impossible today. We can no longer afford to abandon our communities when they become unhealthful and move to another location. Aside from the restrictions that lack of space impose upon us, there is even a more practical, economic one which arises from the fact that in the United States today, it has been estimated that the assessed valuation of all privately owned structures and facilities attached to the land amount to $500,000,000,000. Private investment is matched on a dollar for dollar basis by another estimated $500,000,000,000 worth of supporting public facilities: sewers, roads, schools, parks, etc. So we are largely anchored where we are for the forseeable future by these two factors.

This being the case, questions such as the following become increasingly pertinent with each passing day: How do we justify the continuing pollution of our water supplies? How do we reconcile the despoilation on a permanent basis of thousands and thousands of acres of countryside by strip mining? Or, as Mr. Graeser pointed out yesterday, how can we continue to support the construction today of residential and other types of development which, by any standards, will constitute tomorrow's slums? The answer, of course, is we cannot do so by any rational standard. So, barring a revolution in our attitude toward our toward our environment, I think it is safe to predict that future generations will regard us as even more benighted than the people of the distant past, to whom I previously referred, for one principal reason, and I think this is a significant one: We have it in our power to do better.

I'd like to give an example which begins with an allusion to Pittsburgh. Today Pittsburgh is certainly no worse than most American municipalities from the standpoint of air pollution and probably much better than most. You know, however, that in the Pittsburgh situation this has not always been the case. I can testify to this since I was born and raised in that community. During the years extending from the time that I was born till about 1945, frequently recurring periods of heavy smoke intermingled with particles of soot were a commonplace thing. In my youth I heard it said on many occasions that we should be grateful for this distressing condition because when it was at its worst the city was the most prosperous.

The other day in a conversation with some of the health authorities in our area I heard for the first time an appropriate terminology applied to this amazing feat of mental self deception. They termed it the gold dust theory of community development. And while Pittsburgh has managed to overcome this attitude, at least insofar as air pollution is concerned, the gold dust theory continues to have an amazing degree of acceptance in our urban areas today. In the event that you should be inclined to doubt that this is so, I refer you to the following: First example is the eye smarting smog that has afflicted Los Angeles in recent years as well as the very smoky atmosphere which I encountered on a recent visit to New York City. (As we would say here at this conference, part of the New York region airshed was experiencing an inversion that day.) Second example is the recent newspaper article, and I hope others saw this, which confirmed the impossiblity of removing all of the vast quantities of hard detergents from our drinking water. Proposals for substituting a more manageable soft detergent have encountered resistance because of the fact that the soft detergent apparently costs a few cents a pound more to produce. Third example is the distressing content of Rachel Carson's best seller, Silent Spring.

As a fourth example, I refer you to the propaganda advertisement of the Butler County coal operators which just a few weeks ago appeared in one of southwestern Pennsylvania's newspapers. The Butler County coal operators represent the strip miners which are located immediately adjacent and north of our core county, Allegheny County. This advertisement is addressed to the people of Butler County should cooperate with the coal operators in their process of despoiling the county's land through strip mining and in so doing minimize the requirements, if not eliminate them altogether, for restoring these strip mined areas. The coal operators say that one third of Pennsylvania's bituminous mining is by the open pit method. Independent truckers hauling coal from the pit to the tipple gross over $9,000,000 annually. Truckers hauling coal from the pit or cleaning pit to the consumer gross $15,000,000 annually. The imposition of additional cost factors upon the open pit industry through legislation, such as backfilling to the top of the high wall or similar proposals requiring the obvious outlay of additional moneys, could not help but have an adverse effect upon the economy of Pennsylvania and the citizens who rely on the coal industry for their bread and butter. This is about the best recent example of the gold dust theory of community development that has come my way.

In the past years we could hardly be criticized for these practices since very often we didn't know the consequences of them insofar as they affected our environmental health. Or perhaps we couldn't afford to do anything about them. Or maybe we lacked the requisite technical know-how to cope with them. But this is no longer the case and I think that this was brought out quite clearly in this conference in case after case. Instead, I believe we must honestly recognize that the situations that we have today in our urban areas in dealing with the problems of environmental health result from citizen, yes, and from professional, lethargy, stupidity, cowardice, and/or selfishness. I can think of no other answers.

I would like to talk a little now about how the current environment in our major urban areas, both for environmental health and urban planning, affects both health specialists and planners. The practical aspects of the situation require a closer working arrangement between planners and public health officials which will determine very largely the degree of success which we may anticipate in our work. Divide and conquer tactics are ever present on the part of those who have some selfish interest in perpetuating the health and development problems of our burgeoning urban regions.

I think it is safe to say that, for many years, planning was principally concerned with prevention rather than cure. Only within comparatively recent times, largely since the advent of the urban renewal program, has planning become heavily involved in the remedial aspects of urban development. On the other hand, it seems that public health has followed a somewhat reverse course, being largely concerned at first with the cure aspects of its job. It has only recently begun to move solidly into the area of prevention. I suspect that I will hear from people in both camps about this gross over-simplification. I believe, however, that it has enough truth in it to be valuable as a background for the first point I wish to make pertaining to our joint urban environment; namely, that the prevention aspect of both our jobs is held lightly by the general public.

In the area of planning this probably accounts, at least in part, for the difficulties we have in enforcing a well prepared zoning ordinance, largely a preventive activity, in comparison with the substantial continuing interest and support which we are more often accorded in connection with the curative activity of urban renewal. This being the case, I am led to suspect that as public health moves more and more into the areas of prevention it may find that it has substantially less continuing support than previously. I hope I am wrong about this, but I have a feeling that this may be true. Obviously we cannot expect human beings to act as other than human beings. To be quite fair about it, there is much less drama in enforcing a housing code or a septic tank ordinance than there is in arresting a polio epidemic.

A second environmental problem which confronts us jointly is the tremendous undirected growth that is taking place in all but a very few of our urban regions. I am not referring only to the growth in numbers in these locations but more to the sprawling spread of these areas into square mile after square mile of countryside. It is my personal opinion that "we ain't seen nothing yet" along this line. It seems certain that as the Interstate System moves closer to completion, we may expect to see our cities explode outwardly in a manner that will make their previous spread seem minor by comparison.

I don't have to tell you about the consequences of this in terms of both planning and health problems, especially when the bulk of it is likely to take place in the areas which, in spite of our best efforts, are completely unprepared to cope with it. I wish one or the other of us had a magic elixir that would either prevent or cure this, but it certainly does not exist, at least at the present time. Considering the problems that we already have facing us in our urban regions, we cannot even derive any solace from the fact that these additional errors in urban development are likely to make the services of both public health people and planners even more necessary. We've got a built in job security which is likely to kill us all if we try to measure up to it in its broadest terms.

This second point leads me to a third one--the extreme difficulty encountered in attempts to develop at least a minimal organizational framework within our urban regions for tackling problems that are area wide. Certainly, some problems must be approached on this basis, and those of water supply and air pollution come immediately to mind--as previous speakers in this seminar have pointed out. Even weak tools, such as the average regional planning commission and voluntary, regional governmental councils, do not exist in most areas. In both environmental health and planning, the states have yet to become the effective instruments for coping with these problems that must some day become. A basic reason for this appears to be that most state health and planning agencies have as yet to develop a policy commitment and a specific plan for the kind of health and planning mechanism which they need to develop in their state. We need this type of leadership in the states most urgently, I feel, in planning and public health.

The environment for health and planning activities in our urban areas is in many respects a substantial handicap to us. But rather than curse the gods and chew our fingernails about this, I suggest that we join forces and enlist the services of as many others as are willing to work with us in altering this deplorable situation. As our labor friends tell us, in union there is strength.

Beyond this, there are three additional points that have come to my mind out of the conference. The first of these is concerned with getting us back down to earth again after all the professional and personal back scratching the planners and public health people have been doing here for the last two days. I think I can approach this best by asking a question: Does everyone in an urban or metropolitan area feel that there are problems? And here is what one authority said, "I merely remind our group in this meeting that the city is viable to a very large extent, that babies are delivered, medical care is provided, milk does arrive at each apartment in the morning, and people do move, even though in bunches and under difficulties. They get to their offices somehow or other, and they get home. I was reminded that the old core city had its frustrations, and it is very gratifying to recall them because it is an old common heritage of human behavior." In other words, the average citizen in the community, while he may be frustrated and annoyed at times, may not, except in great emergencies, share our view of the fact that there are many, many problems that require great effort and substantial expenditures of money, new organizations, etc. to cope with them. The city does work, if falteringly, at just the minimum level necessary to keep the average citizen happy.

The second question that I'd like to ask at this time is: Has planning really arrived? Here's what this same above-quoted authority had to say: "People are suspicious of planners by whatever name." I wouldn't dare suggest to you that I think that suspicion is valid, certainly I would not want to be quoted on it. I reiterate it only because there is a sufficient degree of historical validity in the suspicion of planners for a very significant reason. The planner who can conceive on a broad human and geographical scale is an individual who arrives at a degree of impatience that is implicit in his trade. His impatience stems from the fact that people are slow in recognizing the fact that they are misbehaving. Of course, if 100,000,000 people misbehave, there is the inkling of suspicion in some thoughtful planner that he is out of step. But whether he is or isn't, he has the drag of 100,000,000 people with whom he has to function. An old saying goes, "If only God would give us the powers to see ourselves as others see us."

Let me turn to another thought that occurred to me during this seminar. It rose out of a comment made by Dr. MacCorkle when he mentioned the degree of economic segregation that is present in our communities. What happens to those people who are at the bottom of the economic ladder as Dr. MacCorkle put it, in this type of an environment? Just recently there was a very interesting book published, written by Michael Harrington. Those of you who might be interested in this particular problem, I suggest might purchase a copy and read it. The name of the book is The Other America, Poverty in the United States. I happened to have with me on the plane coming down here to Austin, a copy of the Journal of Housing and noted that Michael Harrington had delivered the keynote address at the recent NAHRO meeting in New York City. I'd like to read to you just a couple of things about this problem of economic segregation as Mr. Harrington laid it before the NAHRO group and as he elaborates on it in his book. My first quotation is this, "We have a considerable and huge, unconscionable, scandalous problem of poverty in our midst, and far from having the right to be optimistic that economic change will gradually and moderately, without our intervention, take care of this problem, we have to say, in 1960, with the problem of automation and a great rate of unemployment, above all with the problem of the young, that nothing is going to happen. Unless and until we act, things will get worse."

Secondly, Mr. Harrington makes this very important point, "These poverty stricken people form a culture, they have a special plight. In the old days in the United States, in the days of the great immigrant movements, it was possible to live in a slum and not be a slum dweller. Then you were part of a culture of hope, a culture of aspiration which came from the old country. The slum was center of a culture of religion, of a language, and of hope. There were in the slums the intelligent and the not so intelligent. There were those who wanted to break out. There was a mood. A great drama of American society was that the miserable slums at the turn of the century, in this period of immigrant days, were way stations, and merely way stations, into the great society. Today that is no longer true. In order to approach this problem seriously, we need to think differently. We need to be radical, in the traditional sense of the word. We need to get to the root of the problem. Above all, we need to be comprehensive. If there is anything that is true about poverty, it is that you cannot attack it piecemeal, you cannot simply change one thing about a poor person's life and expect that you have made good progress. That is penny wise and dollar foolish if you want to put it in the most actuarial sense of the word. We can build decent housing for the poor, we should, but if at the same time we build housing that is nice and leave the job situation the same, we leave the medical care provision the same, we leave these people isolated from contact with the great society, then we have vitiated 90% of what we have done because poverty is not simply this factor or that factor, or the other. Poverty in the United States is the interconnection between these factors. This is what is meant when we say poverty makes a culture. If one is serious about attacking a culture, then one must think comprehensively not of a single problem, as housing, but of a total problem, as human environment."

With this in mind I was particularly happy to hear two things at this conference. One, and I hope I quote Dr. MacCorkle properly, was this: "A primary task of citizens and governmental officials is not to grow buildings but to grow people." And then last night Dr. Higgens in his very interesting talk about the economy of the southwestern United States said the need to help the people in the border towns, rather than the border towns themselves or any other depressed areas, was in his opinion a paramount need.

At this point I'd like to mention briefly a thought that I got from Dr. Gloyna's paper on Radiological Health, and Mr. Zisman's remarks on the changing nature of industry. These brought to mind the fact that we live in a world of change. Its a world with the rapidity of change accelerating. I'd like to read you, in this context, a couple of paragraphs that Sidney J. Harris wrote in his recent column entitled "Our Universal Need To Recognize Change." He is quoting from a book called the Open Mind by Dr. J. Robert Oppenheimer, the celebrated physicist: "This task is our pressing universal need, to recognize change and to cope with it. In an important sense this world of ours is a new world in which the unity of knowledge and the nature of human communities and the order of society, the order of ideas, the very notions of society and culture, have changed and they will not return to what they have been in the past. What is new is that in one generation our knowledge of the natural world before. The techniques among us, by which we live, multiply and are ramified so that the whole world is bound together by communications, blocked here and there by immense barriers of political tyranny." I think he must have been talking about our metropolitan areas. To assail the changes that have unmorred us from the past is futile and, in a deep sense, wicked. Instead, we need to recognize and accept change and learn what resources we have to do worthwhile things with it.

Let me conclude my remarks by making the observation that the destinies of planners and health professionals alike, in our major urban regions, seem inevitably to be intertwined one with the other. This being the case, it seems to me that we should know more about the strength and weaknesses of each other, and to the extent permitted by our responsibilities, become mutually self-supporting.